July 14, 1958

Paper Trade Journal

Eastern Corp. Starts New Bleached Kraft Pulp Mill

West Virginia Enters Building Products Field

Improve Felt Operation by Chemical Treatment

Paper Machine Rebuild Means Higher Production

When Gottesman enters the picture...

...technical service is yours for the asking

When production problems demand the help of the best technical specialists, Gottesman customers know where to turn. Technicians on the staff of our pulp suppliers stand ready to assist our customers. It's one of many "fine points" of service we provide because we know what's important in pulp.

The Gottesman Organization

Established 1886

GOTTESMAN & COMPANY, INC. • CENTRAL NATIONAL CORPORATION
CENTRAL NATIONAL COMMERCIAL COMPANY, INC.
100 PARK AVENUE, NEW YORK 17, N.Y.

WOOD PULP

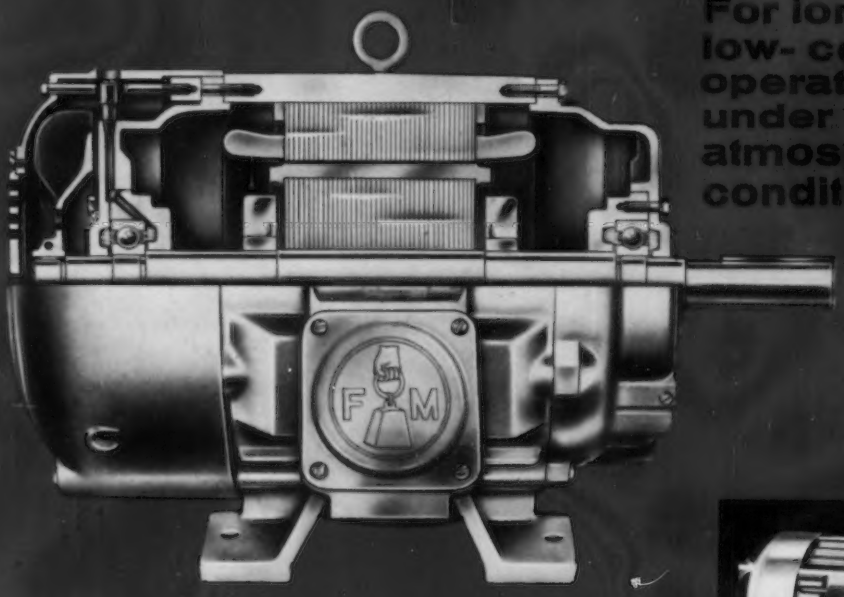
PULP PAPER EXPORT CNC

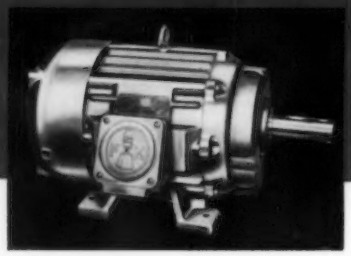
Gottesman & Company Aktiebolag, Stockholm • Central National-Gottesman Limited, London • Representatives in 55 Leading World Markets

University Microfilms
Att: E B Power
313 N First St.
Ann Arbor, Mich.

Here Is Your Motor

For long-life, low- cost operation under adverse atmospheric conditions





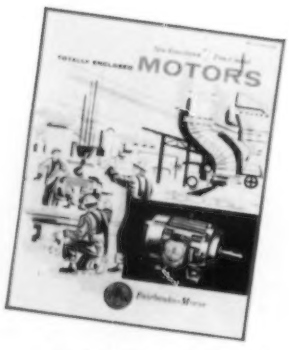
NEW

Fairbanks-Morse Totally-Enclosed Fan Cooled With Controlled-Stream Air Flow!

New Fairbanks-Morse design confines air stream to surface of motor—provides extremely efficient cooling, prevents dust and dirt accumulation. Combines advanced design innovations with long-proven F-M features.

See why these all-new F-M motors warrant your investigation *now* for severe service involving dirt, dust, metal turnings, or abrasive particles; corrosive vapors, steam, excessive moisture, etc.

Write today for new Bulletin 1205, giving complete information on new F-M Totally-Enclosed Fan-Cooled (Type KZC, in larger frames) and Non-Ventilated Motors (Type KZE, in smaller ratings). Fairbanks, Morse & Co., 600 So. Michigan Ave., Chicago 5, Ill.



ASK FOR NEW F-M BULLETIN 1205

FAIRBANKS-MORSE

a name worth remembering when you want the BEST

ELECTRIC MOTORS AND GENERATORS • DIESEL LOCOMOTIVES AND ENGINES • COMPRESSORS • PUMPS • SCALES • RAIL CARS • HOME WATER SERVICE EQUIPMENT • MAGNETOS

B.F.Goodrich

Photograph courtesy of Hammermill Paper Co.

B.F.Goodrich size press rolls stand heat, last longer

THAT B. F. Goodrich roll has a smooth, highly polished surface that makes it ideal for use on a size press. It is completely free of blisters and other imperfections that cause sheet marking.

B. F. Goodrich developed a special heat-resisting rubber compound for this roll to resist the effects of warm sizing wax and heat from the dryer. Surface checking has been virtually eliminated.

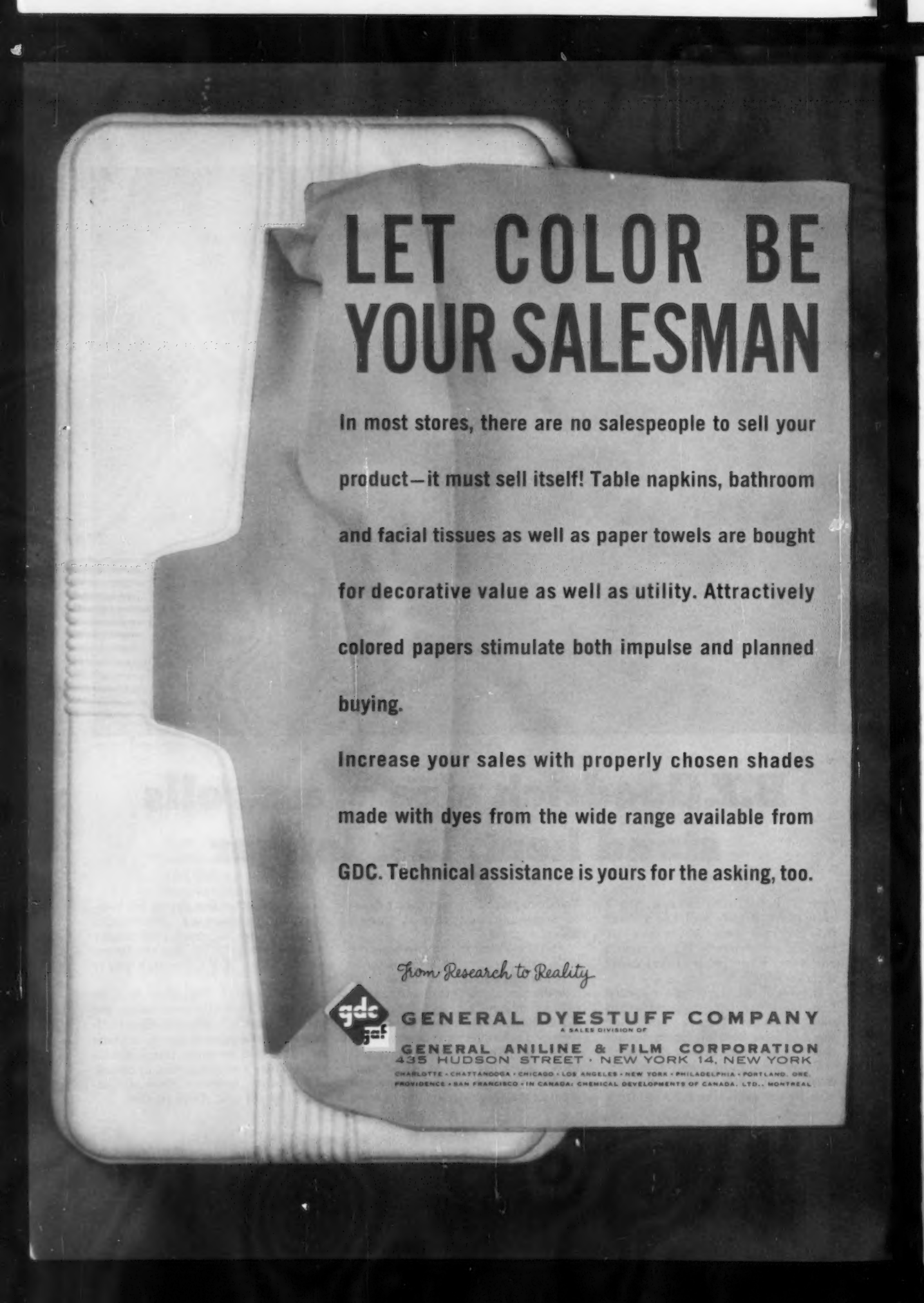
Cover separation is impossible because the rubber is locked to the steel core by the exclusive B.F.Goodrich Vulcalock process—the strongest rubber-to-steel adhesion that is known today.

And the Vulcalock process seals the ends, where corrosion starts in ordinary rolls, by bonding the rubber cover over the core edges. This special end seal reduces edge checking and cracking, so B.F.Goodrich rolls do not need to be reground as frequently as other rolls.

The B.F.Goodrich size press roll shown above has been in use six years at a leading paper company, helping to produce their high-quality line of bond papers and other fine papers for business and advertising use. This record is typical of the improved performance and longer service life that can be expected with B.F.Goodrich paper mill rolls.

B. F. Goodrich engineers will be glad to send you information on the many kinds of rolls B.F.Goodrich makes for the paper industry, or come to your plant to make recommendations. There's no obligation, of course. *B.F.Goodrich Industrial Products Company, Dept. M-358, Akron 18, Ohio.*

B.F.Goodrich *industrial products*


LET COLOR BE YOUR SALESMAN
In most stores, there are no salespeople to sell your product—it must sell itself! Table napkins, bathroom and facial tissues as well as paper towels are bought for decorative value as well as utility. Attractively colored papers stimulate both impulse and planned buying.
Increase your sales with properly chosen shades made with dyes from the wide range available from GDC. Technical assistance is yours for the asking, too.
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July 14, 1958, *Vol. 142, No. 28*

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REMEMBER THESE DATES

July 28-Aug. 1: TAPPI Engineering Conference, Multnomah Hotel, Portland, Ore.

Sept. 10-12: Third International Mechanical Pulping Conference sponsored jointly by Technical Section, Canadian Pulp and Paper Assn. and Technical Assn. of Pulp and Paper Industry; Chateau Frontenac, Quebec City.

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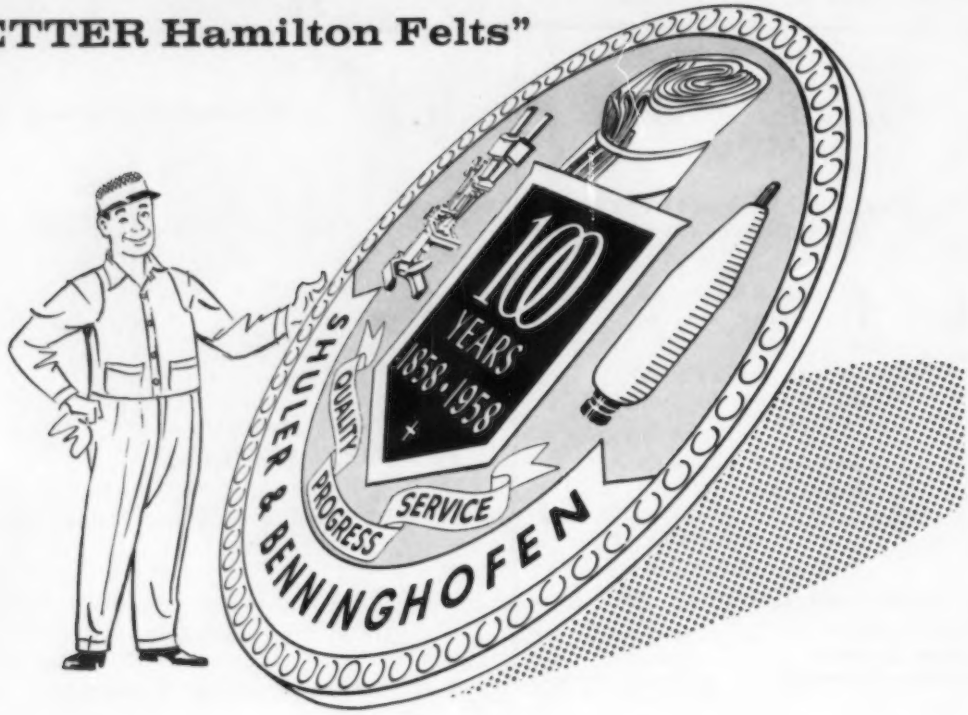
Ham Feltz says . . .

"This 100th Anniversary Seal Is Your Assurance of BETTER Hamilton Felts"



"QUALITY . . . SERVICE . . . PROGRESS."
These words—appearing on our 100th Anniversary Seal—sum up the philosophy which has guided us since our founding in 1858 by J. W. Benninghofen and Asa Shuler. They epitomize our pledge to the paper making industry for the years to come.

Every operation in the manufacture of Hamilton Felts—from the selection of wools through the finishing process—is still characterized by the same proud craftsmanship as in those earlier days.
But today's Hamilton Felts also incorporate the results of our continuing program of technical improvement—
permit operators to run machines faster with fewer stops, less broke . . .
they remove more water faster and deliver drier sheets to the driers.
Isn't this what you, too, want from your felts?
Then why not contact us—today?

YOU CAN'T BEAT
Hamilton
FELTS

SHULER & BENNINGHOFEN, HAMILTON, OHIO

new data proves: UREA is excellent for

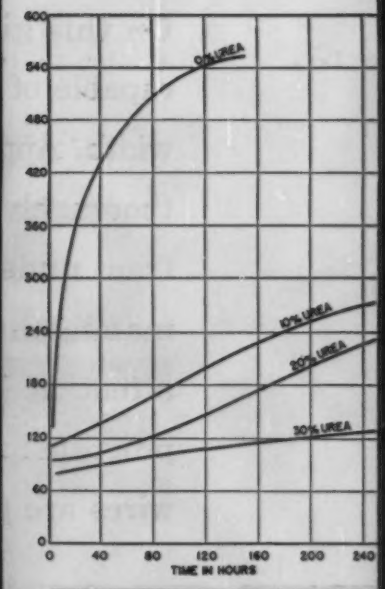
Viscosity Control

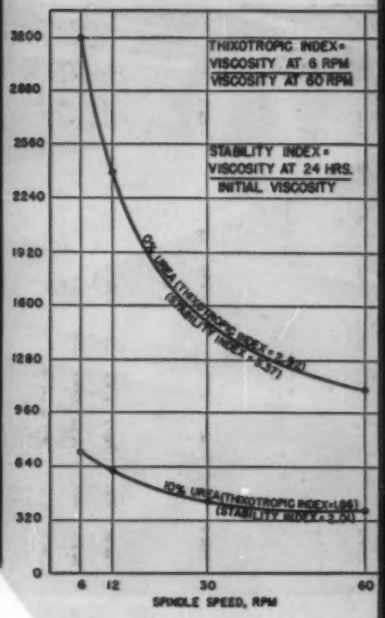
in paper coating

We can show you just how effective UREA is in controlling viscosity of modified starch, casein and Alpha Protein adhesive dispersions—and in reducing thixotropic index too.

The means: actual experimental data in the form of 15 graphs prepared by our research group, and based on field trials. Two graphs are presented on the right.

This data indicates that small amounts of UREA— • give large viscosity reductions, and drastically lower the rate of viscosity increase on standing • lower thixotropic index • permit use of adhesive dispersions with higher solids content.




THIXOTROPIC INDEX = VISCOSITY AT 6 RPM / VISCOSITY AT 60 RPM
STABILITY INDEX = VISCOSITY AT 24 HRS. / INITIAL VISCOSITY
0% UREA (THIXOTROPIC INDEX = 2.80)
(STABILITY INDEX = 4.37)
10% UREA (THIXOTROPIC INDEX = 1.66)
(STABILITY INDEX = 3.00)
BROOKFIELD VISCOSITY IN CENTIPOISES AT 26° C
SPINDLE SPEED, RPM

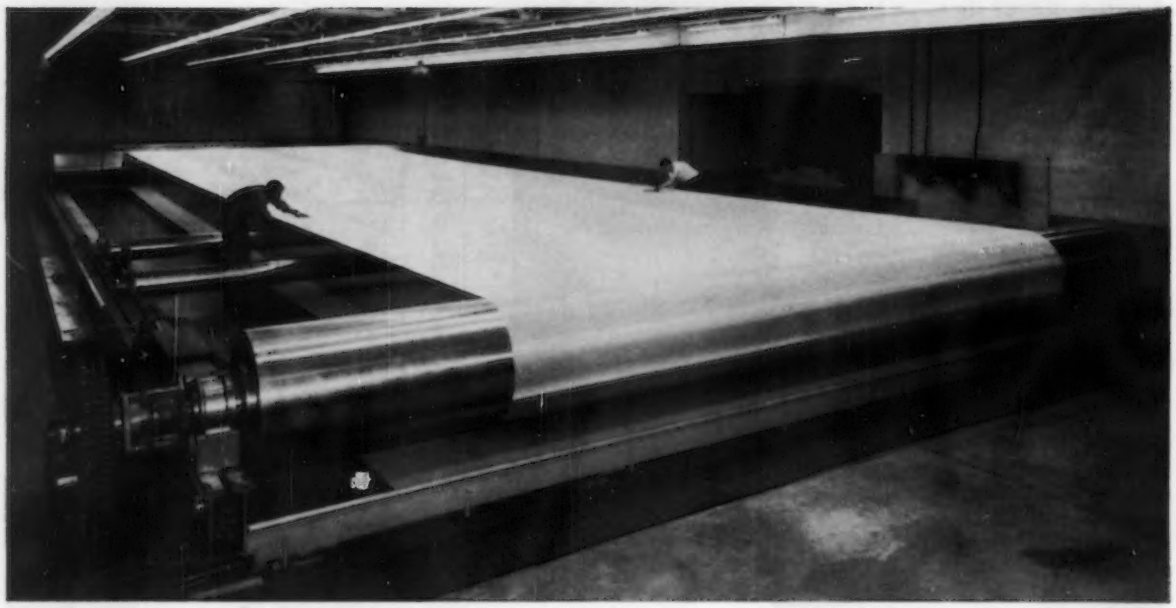
Because UREA is readily available, and effective, paper coaters interested in improving operations and lowering costs will want to examine this data in detail. Send for the paper "Viscosity Control of Paper Coating Adhesives with UREA" by Belche and Ellis for the complete story.

Allied Chemical — Nitrogen Division

40 Rector Street, New York 6, N. Y.

Ethanolamines • Ethylene Oxide • Ethylene Glycols • Urea • Formaldehyde • U. F. Concentrate–85 • Anhydrous Ammonia • Ammonia Liquor • Ammonium Sulfate • Sodium Nitrate • Methanol • Nitrogen Solutions • Nitrogen Tetroxide • Fertilizers & Feed Supplements

On this giant finishing table (one of seven), capable of finishing wires up to 410 inches in width, Appleton wires are carefully conformed, thoroughly inspected. All the wires we weave—from under 50 inch widths to over 300 inch mammoths—receive the same painstaking attention. It's part of our rigid quality control program . . . and another reason why Appleton wires are good wires.



Appleton's Fourdrinier wire pioneering is exemplified by our tin coated wires for corrosion resistance, and Mangaloy wires for greater resistance to abrasion. Ask your Appleton Wire Works representative for details. Appleton Wire Works, Inc. General Offices, Appleton, Wisconsin. Plants at Appleton and Montgomery, Alabama. International Wire Works, Menasha, Wisconsin, an affiliated company.

APPLETON WIRES ARE GOOD WIRES

GOOD TIME TO TRIM FAT

from needless caustic soda costs!

Columbia-Southern's experience in manufacturing and selling quality caustic soda convinces us that many caustic users can effect appreciable savings on their current costs. Isn't this the ideal time to see if this applies to your caustic consumption?

Let's take the *form* of caustic you are buying and handling. Are you quite sure that new or projected changes in your products or processing won't be benefited by purchasing liquid, rather than anhydrous? Or vice versa? Or 73% liquid, rather than 50%? Do you have reliable figures on diluting and storing the stronger concentration? How about the facts on completely up-to date unloading techniques and equipment?

How about the uniform *quality* of the caustic you are receiving? Here again, Columbia-Southern can advise you with the authority of recognized experience. As a matter of record, we have led in developing improved tank car linings, heating, insulation, and safety features . . . patented unloading and dilution processes . . . economical waterways delivery.

Our well-grounded Technical Service engineers have helped customers save thousands of dollars in buying and using caustic soda. Isn't it good business, especially *now*, to see what savings they might work out for you? You may request their services either through our Pittsburgh address, or any of the fourteen Columbia-Southern District Sales Offices.

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COLUMBIA-SOUTHERN CHEMICAL CORPORATION A Subsidiary of Pittsburgh Plate Glass Company

The Paper Mountain

"Yes, Dan, it was over 40 years ago when I started here. And I was as green as they come. To me it was just another job until, one day, the boss took me aside and beckoned me to this very window.

"'*See that mountain over there, Jim?*' the boss asked. '*That's what I call Paper Mountain.*' 'Paper Mountain,' I repeated in wonderment, 'how did it get its name?' '*Oh, it's more than just a name,*' the boss answered with a faraway look in his eyes, '*it's an ideal!*'

"Before I could ask him what he meant, the boss continued, '*Yes, Paper Mountain represents the future you, I and the company have in the paper business. It represents the dreams, the goals, the aspirations of this mill. Production-wise, it's only a molehill now. But some day,*' he continued proudly, '*some day our daily output will be as high as that mountain.*'

"'*But the climb won't be easy. It can be reached only if we set for ourselves the highest possible standards. Use only uniform-quality products, the best technical know-how, and just plain hard work. Seconds—both in production and personal effort—fall by the wayside.*'

"The boss has been gone several years now—and wasn't around when we reached the top of Paper Mountain. But he knew we would—for his vision, his enthusiasm, his love of the paper business, rubbed off on the rest of us.

"What's that you ask, Dan? What are our plans for the future now that we've reached our goal? Why, son, that's easy! With your help, and other young men like you, we're going to start another mountain."

For over 50 years Staley's creative research, unsurpassed technical know-how, and complete line of tailor-made starches, gums, dextrins—second to none—have been helping paper manufacturers reach the top of their own paper-production mountain. Can we help you reach yours?

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World's Largest Processor of Corn and Soybeans
A. E. Staley Mfg. Co., Decatur, Illinois
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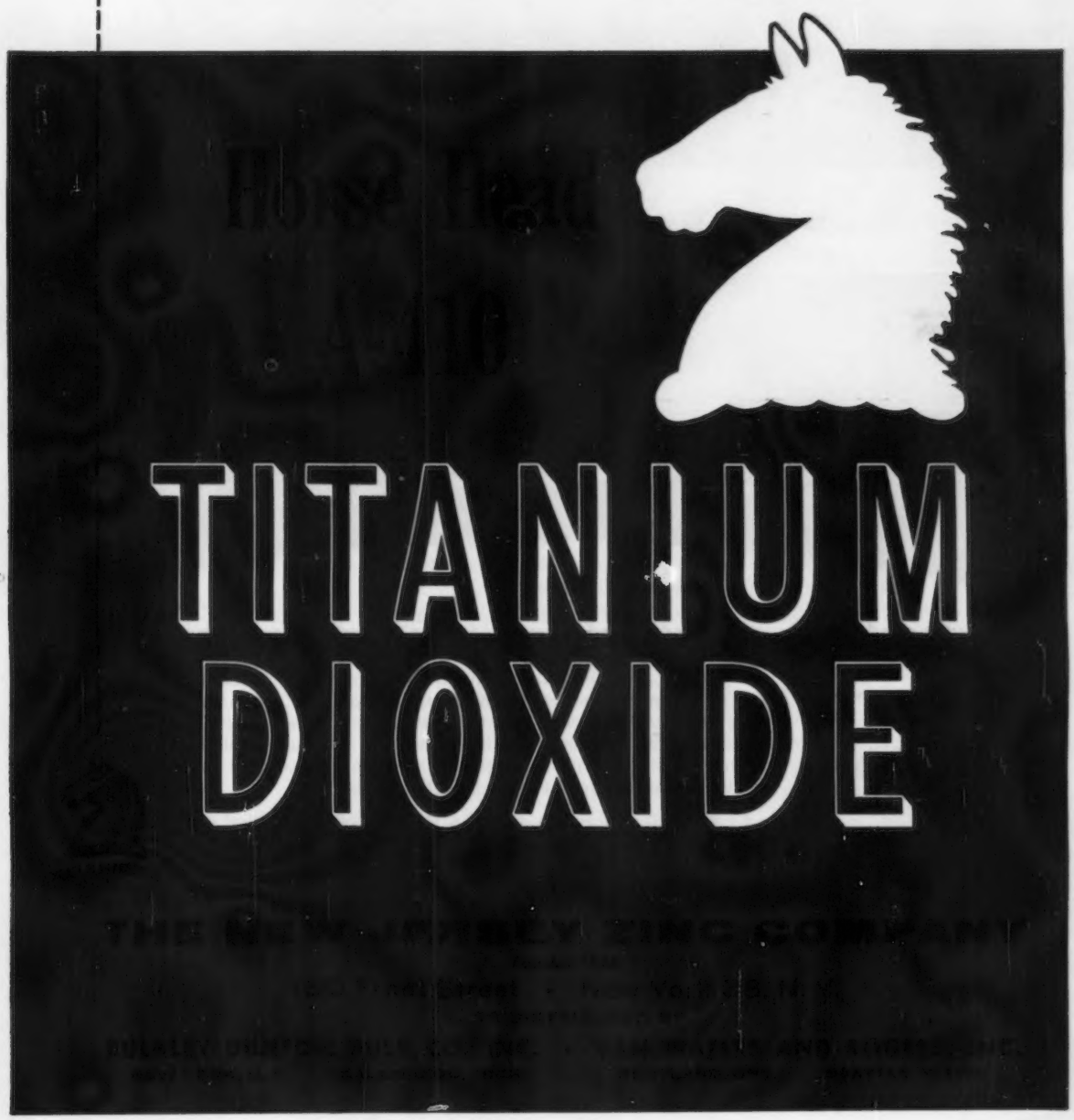
It's custom-packed for PAPER!

HORSE HEAD A-410, the tailor-made anatase titanium dioxide for the paper industry, is specially packed in 3-ply white kraft bags. That's for safe transit and for your convenience. You can add it . . . bags and all . . . directly to your beaters. It provides excellent whiteness, brightness, and opacity.

Send for a sample today.



long-run power by Allis-Chalmers

Is stock chest uniformity your problem?

Now a new Lightnin' Mixer unit provides more uniform stock (in as little as 6 minutes), shorter blending time, tighter color control in mill stock chests. AND — driving many of these mixers are Allis-Chalmers motors with the long-run power that keeps this mill equipment on the job.

Here's why many performance-minded mill machinery suppliers specify "chemical type" motors by Allis-Chalmers:

1. **MORE** cooling surface, more iron and copper content contribute to longer motor life.
2. **MORE** stator protection comes from extra dips and bakes. Result — maximum electrical protection in wet, corrosive locations.
3. **BOLTS** are standard hex head type with no slots or sockets to form pockets for corrosion.

For long-run power, specify Allis-Chalmers motors as new components or as replacements. Contact your A-C district office or distributor, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wis.

A-5512

ALLIS-CHALMERS

THIS IS DRYDEN PAPER COMPANY

Customer's one-word report on this pulp: "WONDERFUL!"

Back in the Spring of 1956, one of America's leading paper makers began to look for ways to improve their products. They realized that, to get a better product, they had to start with a better pulp.

The engineers and lab men at this plant heard reports about a new pulp coming down from Canada—the two-stage chlorine dioxide Northern bleached sulphate pulp that Dryden Paper Company would soon be producing at its new Dryden, Ontario, plant. So these paper men ordered a fifty-pound sample of Dryden, unbleached, so that they could bleach it and follow it through into paper in their own labs.

Their one-word report: "Wonderful!"

Soon after the opening of the Dryden plant in 1957, they contracted for several thousand tons of Dryden pulp for each of the next five years...but they soon came to rely on Dryden as their *only* source for quality pulp, continually upping their shipping orders. 1958 shipments are nearly three times the original tonnage.

Compare Dryden Bleached Sulphate with the best quality pulp you know. You, too, will say it deserves all the laboratory endorsements—*and all the production testimonials*—it now enjoys. Order a trial shipment today.

DRYDEN PAPER COMPANY, LIMITED
DRYDEN, ONTARIO, CANADA

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67 Yonge Street, Toronto 1, Ontario

SALES REPRESENTATIVES IN THE UNITED STATES:
Northeastern Paper Sales, Inc.
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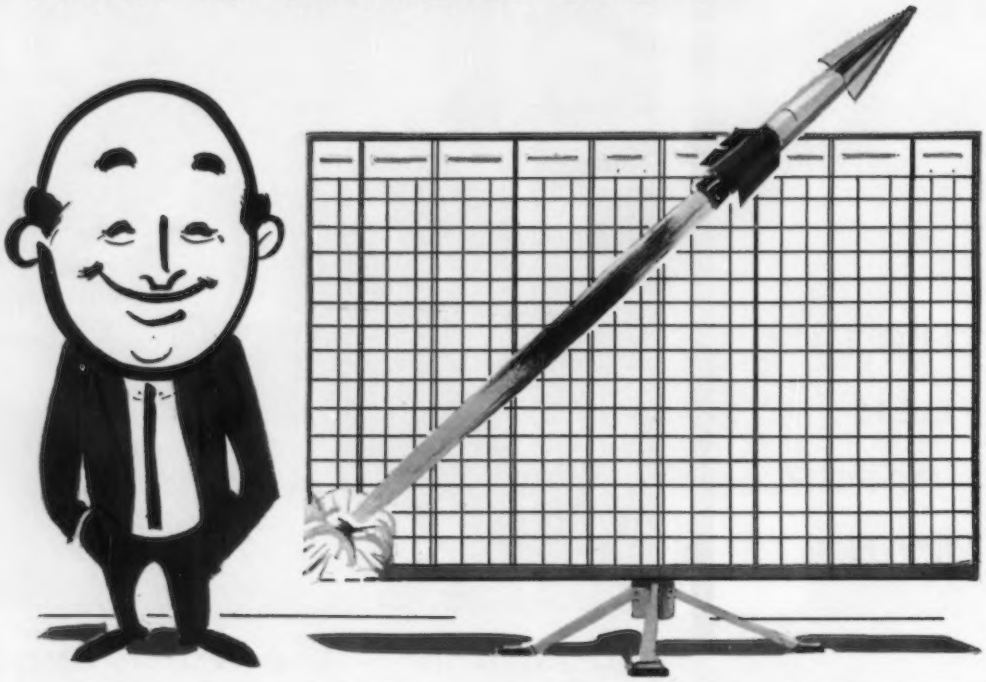
Want to see sales soar?



Try new PURECAL*O

— Wyandotte's *refined* grade of pure calcium carbonate

Want to boost sales by making a *higher quality* coated sheet at competitive prices? Try Wyandotte's new *Purecal O!*

Compared with other good coating pigments, *smaller* quantities of *Purecal O* will maintain a given brightness while *improving* gloss. Substituted equally, this refined calcium carbonate will *improve* brightness markedly.

You see, aggregate-free *Purecal O* contains about 20% more pigment particles per pound. So *Purecal O* is a homogeneous product with improved gloss characteristics. Six years in development at the request of leading papermakers, *Purecal O* meets their vital need for a higher finishing calcium carbonate.

Shouldn't *you* investigate the advantages of *Purecal O* in your own formulation . . . now? For complete technical data and samples to evaluate in your laboratory, write today: *Wyandotte Chemicals Corporation, Technical Inquiry Section, Wyandotte, Michigan. Offices in principal cities.*

SHAPED FOR BEST FLOW AND LEVELING

Cubical particles of *Purecal O* flow readily to fill imperfections in the paper; provide a smooth surface, high in ink receptivity.

QUALITY-CONTROLLED UNIFORMITY

Controlled precipitation insures the same purity and shape and particle size of every pound of new aggregate-free *Purecal O.*

*REG. U.S. PAT. OFF.

Other Wyandotte products for the paper industry:

SODA ASH • CAUSTIC SODA
CHLORINE • KREELON*
PLURONIC* POLYOLS • CARBOSE*

Wyandotte CHEMICALS

MICHIGAN ALKALI DIVISION

PACING PROGRESS WITH CREATIVE CHEMISTRY

Paper and Board Rates for June

Paper mills ran at 85% capacity in June and board mills at 86%. Comparative May figures were 86% and 84%. Our mills therefore last month did not seem to share in the slight general business improvement. However if the latter continues we cannot remain long behind.

Another Important Example of Diversification

Start-up of West Virginia's new flakeboard (a building product) plant at Tyrone, Pa. points up the continuing diversification of products by many of our companies. West Virginia, originally producers of printing papers, now manufacture almost every grade of paper and board but tissue. At the same time the company has acquired many converting plants as outlets for some of the mills' products.

First Half In Corrugated

Production of corrugated shipping containers for the first six months of this year was off only 4.5% from the same period last year.

Waste Paper Prices Move Up

As we go to press, news and corrugated prices have just been hiked $2.00 and $5.00 respectively in New York—the first price increase for low grades here in ten months . . . brokers happily report a tighter demand-supply situation in most grades across the nation.

Type of Courage That Pays Off

In this issue we feature Eastern Corp.'s new bleached kraft pulp mill at Lincoln, Maine. This is an example of an older company which has refused to sit back and let the world pass them by. When the company's sulphite pulp mill at Lincoln became unprofitable, due to high cost of obtaining softwoods, they had the courage to plan its shut-down and build an ultramodern kraft mill to use readily available hardwoods in the area. Another New England paper company, Crocker Burbank, has been aggressively keeping up with the times. In recent years we have described a number of major projects at the company's Fitchburg plant. In this issue we describe the rebuilding of the number four machine.

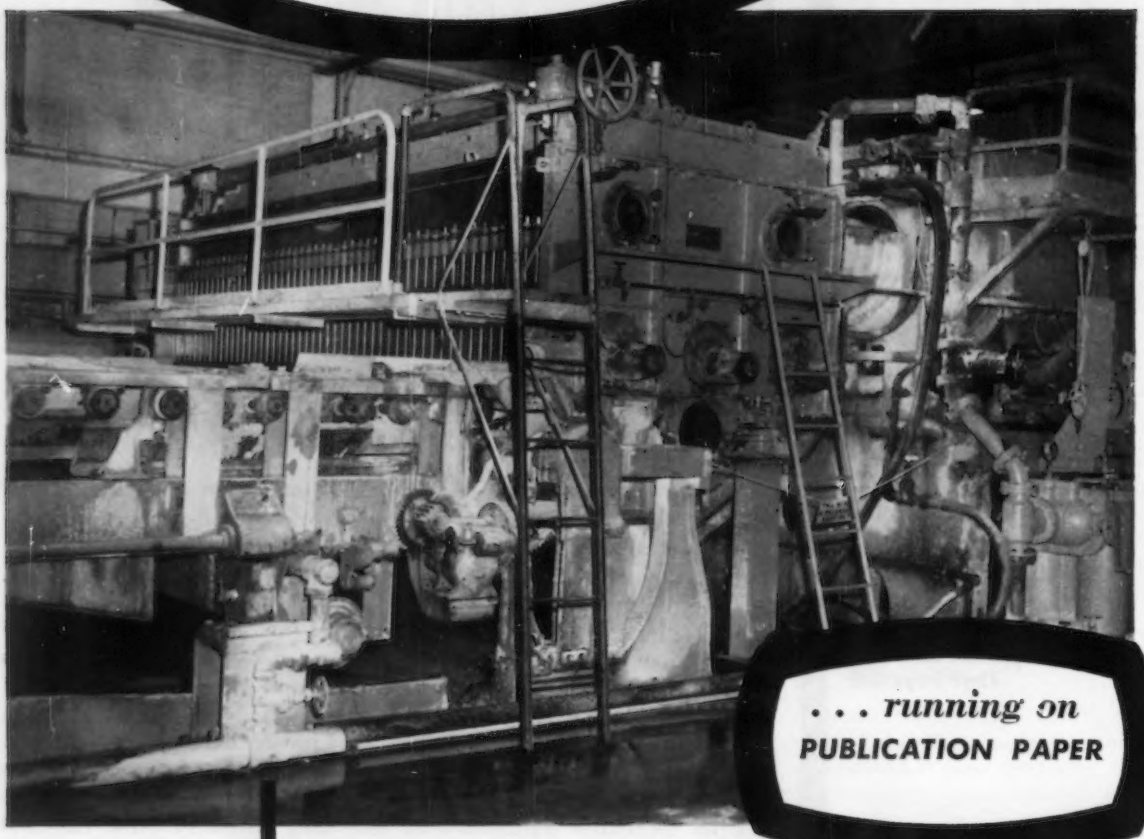
Business Indicators for June

Residential construction up 9% from May (off 1% from June '57); industrial and commercial construction up 5% from May (off 11% from June '57); public construction up 9.5% from May (up 3% from June '57). Employment in manufacturing rose for the first time in 18 months and was 1% above May. With nearly 2 million students added to the potential labor force unemployment also hit a new high; freight car loadings each week in June increased over the previous week's figure; steel production ran well ahead of May (part of this may have been due to an expected July price increase which has failed to materialize as yet). Weakest spot continued to be automobiles with production running about 3% below a year ago.

another new

AIRLOADED HEADBOX

by **VALLEY**



. . . running on

PUBLICATION PAPER

2½% plus or minus

On startup after installation, this patented headbox put out a superior formation without any delay for adjustment or setting-changes. Subsequent adjustment for cross-machine weight reduced the variation to plus or minus 2½%.

A second headbox for the same purchaser is under construction in our shops.

Valley Headboxes are *making money* for their users. We would welcome the opportunity to show how the right type of installation can make money for *you*. All it takes is an inquiry stating "we're interested."

VALLEY IRON WORKS CO.

APPLETON, WISCONSIN

Canadian Representative: Pulp and Paper Mill Accessories Ltd., P. O. Box 903, Station "Q" Montreal 9, Quebec.

K-C's New Milford Mill

Kimberly-Clark's new sanitary tissue mill at New Milford, Conn. started up its first machine late this spring. Later this year a second machine is to begin operating.

Final Award of Alaska Timber Sale Postponed

Georgia-Pacific Alaska Co. has been given another three years to qualify for final award of a timber sale contract involving 7.5 billion board feet of timber in Alaska, the U.S. Department of Agriculture has announced.

Preliminary award of the timber, located in the Tongass National Forest in southeast Alaska near Juneau, was given to the company three years ago. USDA's Forest Service, as is customary in large long-term sales, gave the company three years to show it could meet terms of the final timber sale contract.

The company, a subsidiary of the Georgia Pacific Corp., will have until July 1, 1961, to study plans further for utilizing the timber. If it qualifies for final award, the company may enter into a 50-year timber sale contract with the Forest Service. In this case a plant will be constructed in Alaska by July 1, 1964.

Plans Made for Sale of Whiting Paper

Plans are being developed to resolve the Whiting Paper Co., Holyoke, Mass., situation which has resulted in closing the famous fine writing paper concern.

Negotiations are well along for the acquisition of the property by the New England Associates, a subsidiary of the General American Industries Co. Stanley Rowland of Boston is president of this concern.

The creditors of the closed Whiting concern have been notified of a plan whereby if they agree, the New England Associates will take over the local industrial property. They are promised payment of the debts over a period of time. The agreement requires that 80 per cent of the creditors agree to the plan. The No. 2 mill on Dwight St. will be the first to run, he said, if plans under consideration materialize.

Five-hundred-dollar advance payments were made to all of the creditors. The balance of the obligations, by the plan proposed, will be paid in installments.

Robert E. Barrett, Jr., president of the Holyoke Water Power Co., is chairman of the creditors' committee.

Mr. Rowland said he is conferring with concerns interested in buying specialty papers which the Whiting mills are equipped to make.

Potlatch Enlarges Arkansas Holding, Plans Mill

Potlatch Forest Industries, owners of paper mills at Lewiston, Idaho and Pomona, Calif., have purchased the Bradley Lumber Co. plant and lands in southern Arkansas. Potlatch already had its Southern Lumber Co. division in Arkansas. The new acquisition makes Potlatch the third largest landowner in Arkansas. Dierks is first and Crossett is second. Potlatch will continue to operate the Bradley Saw Mills. Company officials indicated that long term plans definitely call for construction of a pulp and paper mill.

Sutherland to Build in Georgia

Sutherland Paper Co. has announced plans to construct a new $1,500,000 converting plant at Albany, Ga.

The new plant, to be built on a 50-acre tract, will provide 175,000 sq. ft. of floor space for the manufacture of paper cups, plates, pre-packaging meat and produce trays. The firm also expects to manufacture paraffin and folding dry cartons at the Albany site but not until the specialty manufacturing processes are well established.

The Georgia plant is expected to offer initial employment to approximately 100 people. Construction will begin within the next 30 days with completion anticipated by the end of 1958.

Albany is Georgia's sixth ranking city in size with a population of approximately 40,000. It is located on the Flint River about 180 miles from Atlanta.

St. Regis Absorbs Tacoma Lumber Firm

St. Paul and Tacoma Lumber Co. was merged with and into St. Regis Paper Co. on June 30.

The lumber manufacturing, plywood, retail yard, and store businesses of the present St. Paul and Tacoma Lumber Co. will be operated as the St. Paul and Tacoma Lumber Co., Division of St. Regis Paper Co., with offices at 1220 St. Paul Ave., Tacoma, Wash.

The logging operations of St. Paul and Tacoma Lumber Co. will be consolidated with similar present operations of St. Regis, and both operations will be carried on as St. Regis Paper Co., Logging Department, with its office at 1216 St. Paul Ave., Tacoma, Wash.

Oxford's New Coater Progressing

Installation of equipment in Oxford Paper Co.'s new coating building at Rumford, Maine, is progressing rapidly. It is expected that the new coater will be in operation late this fall. New equipment includes the North Star coater to operate at speeds of 200 to 2000-plus f.p.m., a large 12-roll high speed supercalender and a new high speed rewinder.

Hammermill Awards 15 Behrend Scholarships

Scholarship and good citizenship are paying dividends this year for 15 sons and daughters of Hammermill Paper Co. employees—winners of Ernst R. Behrend scholarship awards for 1958-59.

The scholarship winners, announced recently by Hammermill, were selected by the Ernst R. Behrend scholarship committee on the basis of scholastic accomplishment, good citizenship, character and general merit.

The 15 deserving students will enter the colleges or universities of their choice this fall or will continue the courses of higher education they have already begun. They bring the total number of scholarships awarded to over 100 since the fund was established in the will of Hammermill's co-founder and first president, Ernst R. Behrend, to provide educational opportunities for deserving children of Hammermill employees.

Twelve of the scholarship winners are sons and daughters of present Hammermill employees, two are children of deceased employees and one is both an employee's son and a Hammermillite in his own right.

Wins PTJ Scholarship

Peter A. Biddle of Chappaqua, N. Y., is the winner of *Paper Trade Journal's* freshman scholarship for $750 in the pulp and paper course at the University of Maine for 1957-58.

Mr. Biddle graduated this spring from the Horace Greeley high school in Chappaqua, N. Y.

Allen Judson of Chatham Center, N. Y., who held the scholarship last year, will continue to receive it as a sophomore this year.

Fire Destroys Storehouse in Asheville

A fire which roared through an old railroad roundhouse packed with paper and paper products last week in Asheville, N. C. resulted in destruction estimated at $800,000. Champion Paper and Fibre Co. rented the building as a warehouse.

The fire was discovered at 4 a.m. Before firemen got to the scene, the flames had caught huge piles of waxed milk carton paper and the building was an inferno.

It was the most costly fire in Asheville's history. No one was injured, however.

Paper and Board Production

According to the American Paper and Pulp Assn., the ratio of the United States production to mill capacity for the week ending June 28, 1958, was 81.7 per cent compared with 88.5 per cent revised for the preceding week. The ratio was 92.2 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending June 28, 1958, was 89 per cent compared with 88 per cent for the preceding week and 92 per cent for the corresponding week last year.

(Detailed statistics on page 34.)

Jones Named Mersey President

J. H. Mowbray Jones, vice president and general manager of Mersey Paper Co., Ltd., Liverpool, Nova Scotia, has become president and general manager, succeeding retiring president B. J. Waters.

J. A. Parker, a director and secretary-treasurer of the company, becomes in addition a vice president.

Mr. Waters, who is retiring as president, remains a director of the company.

R. L. Seaborne, a vice president, director and woodlands manager, is also retiring and will be succeeded as woodlands manager by G. E. Parker, former assistant woodlands manager.

Howard Smith Expands Cornwall Division

W. J. Coventry, Cornwall, Ontario industrial commissioner, announced a $12,500,000 expansion program for the Howard Smith Paper Co.'s Cornwall Division.

The program, scheduled for completion in mid-1960, includes installation of a new paper machine, hardwood storage yard, extension to the finishing building, an additional steam boiler and a new welfare building.

Four Convicted on Cabbage Palm Deal

Four Florida men have received prison sentences following conviction of fraud in the promotion of a company to make paper from Florida's cabbage palms.

Most prominent of the four is Hollis Rinehart, Miami attorney and former member of the State Board of Control, which has supervision over universities and other public institutions. His sentence was two years in a Federal penitentiary.

Longest sentence, five years, was drawn by Francis E. Getchell, Okeecobee and Tampa businessman, who headed the ill-fated project. His son, Harry, received a two-year sentence. William F. Powers of St. Petersburg was sentenced to one year.

Tissue Paper Probe Begun

The U.S. Treasury Dept. has instituted an investigation to determine if imports of tissue paper from Finland and Norway are being dumped on the U.S. market at illegal cut-rate prices. Pending further investigation, the department has ordered customs officers to withhold appraisement of new entries.

Take a BIG STEP FORWARD

Pressure screen your stock with the

BIRD CENTRISCREEN

and make better, more uniform paper at lower screening cost per ton

After taking one good look at this new Bird Centriscreen, makers of kraft, newsprint and a variety of other grades and specialties started placing orders.

Take a good, careful look yourself. Find out what the advanced design of this Centriscreen means in terms of cleaner, shive-free stock at lower cost.

Rigidly supported, stationary, dual concentric screen plates in combination with scientifically designed hydrofoils produce smooth, continuous, maximum flow of clean, shive-free stock. Ask for detailed information on performance tests covering months of mill operation.

BIRD MACHINE COMPANY

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REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND, OREGON • ATLANTA 9, GEORGIA

Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

NEWS OF CONVERTERS

General Box Swaps Plant for Inland Holdings

General Box Co., Des Plaines, Ill., is exchanging its Louisville corrugating plant for the controlling block of its stock held by Inland Container Corp.

The transactions follow last month's successful effort on the part of Inland to acquire a majority of General Box's outstanding stock.

According to a spokesman for General Box, "approximately" 1,084,000 shares of the company's stock will be redeemed from Inland. The acquired shares will then be retired, leaving 1,012,562 shares outstanding. Book value of the remaining shares will be increased from $4 to $6.50.

The exchange, in addition to the plant, will involve General's business in Louisville and inventories, he said, with no other consideration involved.

In April, Inland offered to purchase General Box stock from holders at a price of $3 a share. That offer, according to a report filed with the Securities and Exchange Commission, resulted in the purchase of 688,639 shares. In addition, in May, Inland acquired directly 322,830 shares for which it had claimed indirect ownership. Another 25,600 shares were purchased in the open market, bringing Inland's ownership to 1,070,769 shares at the end of May or about 52 per cent of General Box's outstanding shares.

Container Corp. Plans Texas Expansion

Container Corp. of America is planning to operate a plant in the Great Southwest Industrial District located between Dallas and Fort Worth, Texas.

The building will provide 195,000 sq. ft. of floor space and is expected to employ 200 workers.

The new plant will provide for the expansion of the folding carton operation that Container has maintained the past 18 years in Fort Worth. The company's corrugated container facilities however will remain in Fort Worth.

The 30-acre site will be inside the Arlington city limits.

Great Southwest Corporation will construct the $2,500,000 building for Container Corp. on a 30-year lease.

Leo H. Schoenhofen, senior vice-president of Container, said that 180,000 square feet will be for production area, 10,000 for offices and 5,000 for covered docks.

With this plant, Container will have manufacturing facilities in 44 U.S. cities.

Envelope Firm Building New Indianapolis Plant

A new manufacturing plant for the Central States Div. of United States Envelope Co. is under construction at East 16th St. and North Sherman Drive in Indianapolis, Ind.

Scheduled for completion by September 1, the new building containing 25,000 sq. ft. will be operated as an annex to the company's present manufacturing and office facilities.

Bathurst Acquires Norwood Box

Bathurst Containers Ltd., Montreal, subsidiary of Bathurst Power and Paper Co., has acquired assets of Norwood Box Co., St Boniface, Manitoba.

Orchard to Build Los Angeles Plant

The Orchard Paper Co. of St. Louis has purchased a three-and-a-half acre site in the new Simon's Industrial Tract, Los Angeles and will construct a converting plant which will increase the manufacturing capacity of the firm's Los Angeles division by 300 percent. Construction cost will be approximately $200,000.

Expansion of the West Coast Division, which was acquired in 1957, states Orchard, is part of the firm's special shipping program, whereby the firm's customers with national distribution receive identical finished goods from plants in the East, Midwest and West.

In addition to the equipment from the present plant, purchase, has been made of additional high-speed bag and envelope-making machines, high-speed rotary printing presses, sheeters, slitters, embossers and rewinders to increase the firm's production of converted specialty products.

New Inland Post for Bridges

R. L. Bridges has been named package engineer of the Inland Container Corp. in the South Georgia area.

Prior to his promotion, Mr. Bridges was serving as sales service manager of the company's Macon plant.

Honeycomb Metal-Faced for Building Construction

Ordinary brown wrapping paper will form the core of the outer walls of the 22-story Brown Palace West luxury hotel now rising in downtown Denver.

The paper is being fashioned into resin-impregnated honeycomb panels, then shipped to California Metal Enameling Co. in Los Angeles, which bonds to both sides an enameled steel of a hue identical to the brownstone walls of the historic Brown Palace Hotel across the street from the new structure.

The final product, shipped back to Denver for installation, is a rigid, fireproof, weatherproof and soundproof curtain wall, light as a feather to speed construction and lower in cost than masonry and many other traditional building materials.

Similar panels of paper cores covered with porcelain-enameled steel form the outer walls of the new General Motors Technical Center, built at a cost of $100 million on a square-mile-plus site in Detroit.

The paper-honeycomb cores for the Brown Palace West are being turned out by the three-year-old Verticel Co. in Littleton, Colo.

The Littleton manufacturing operation is one of three in America turning out paper-honeycomb. The other such operations are under way at Union Bag and Paper Co., Hudson Falls, N. Y., and Douglas Aircraft Co. in Los Angeles, which uses honeycomb in aircraft manufacture.

The process being used at Littleton was developed during 16 years of research by Bernard P. Kunz, 3918 S. Elati St., Englewood. Kuntz attended the University of Denver in the early 1930's and has been in the accounting and engineering fields in Denver since.

PAPER PEOPLE

Rayonier Names Executives for Southeast

Three major executive appointments have been announced for Rayonier's southeast operations.

Donald E. Lawson becomes assistant resident manager for engineering and maintenance at the Jesup, Ga., Division. He replaces Earl K. Murphy who was named chief engineer of the Southeast Central Engineering Division. Frank C. Hawks Jr. has been appointed assistant resident manager of the Fernandina, Fla., Division.

Mr. Lawson came to Rayonier at its Port Angeles, Wash., Division in 1937 as a staff engineer, becoming resident engineer there in 1952. Two years later he was promoted to assistant resident manager of the Fernandina division.

Mr. Murphy joined the New York engineering staff in 1952. He has participated in many of the company's major engineering and construction projects including both new mills at Jesup. In 1956 he was promoted to executive engineer at the Jesup Division. Formerly he had been associated with Westinghouse, specializing in pulp and paper engineering.

Mr. Hawks has been with Rayonier since 1939, joining the firm at its Shelton, Wash., Division. He came up through the ranks as control chemist, process engineer and shift superintendent, being promoted to assistant resident manager at Shelton in 1956.

Simpson Timber Creates New Post

C. H. Bacon Jr. has been appointed to a newly created position of executive vice president of Simpson Timber Co. in Seattle, Wash.

Mr. Bacon, vice president and general manager of Simpson Logging Co. at Shelton since 1953, will have responsibility for overall sales and operational functions of Simpson divisions in California, including Simpson Paper Co. at Everett, Simpson Logging Co. in Washington and Oregon and Simpson Redwood Co. in California.

Badger Mill Chief Named

Badger Paper Mills, Peshtigo, Wis., has announced the promotion of Bennie Burish to paper mill superintendent, succeeding A. M. Dohr.

Allied Appoints Asst. Sales Manager

George C. Freas has been appointed assistant sales manager of Allied Paper Corp.

In his new position, Mr. Freas will be responsible to the executive vice-president and will assist in solving problems of field salesmen with respect to such matters as shipping, prices, and material availability. Among other duties, he will help to train salesmen and handle customer contacts not served by the New York or Chicago sales offices.

New Staff at Westvaco Mills

West Virginia Pulp and Paper Co. has made the following appointments at its Luke, Md. and Covington, Va. mills:

Alfred W. Wagner, formerly manager of standards engineering for the Fischer and Porter Co., Hatboro, Pa., has joined the instrumentation group of the technical service dept. at Luke.

William K. Huckins, a 1958 graduate of the University of Maine, has joined the commercial analysis group. Lester C. Anderson, former member of the staff of Pratt and Whitney Aircraft, Inc., East Hartford, Conn., has joined the Luke personnel department.

At Covington three recent graduates in engineering have joined West Virginia. They are James R. Ballengee who attended VPI, Wayne S. Barlow a graduate of State University of New York, and William T. Heyse who has just received his master's degree from North Carolina State College.

Ives Is Named Ludlow Research Director

Robert S. Ives has been appointed as director of research of Ludlow Papers, Inc., Needham Heights, Mass.

Prior to joining Ludlow Papers, Mr. Ives was president of his own research consulting firm, Ives Laboratory, in Cambridge.

O'Brien Retires from Mead

John O'Brien, with Mead Corp., Chillicothe, Ohio, for more than 43 years, retired this month. He served as steam power superintendent until he transferred to stores in 1953.

Mead Promotes Williams

Mack Williams has been named engineering assistant to John Carson in Mead's conversion coating. His duties will be special problems and assignments. He formerly was senior chemical engineer in charge of the specialty products section in technical service. He came to Mead in 1954 as a chemical engineering trainee.

Consolidated Gives Otto New Duties

Earl F. Otto has been appointed coordinator of inventories for all divisions of Consolidated Water Power & Paper Co. Mr. Otto will continue to serve as Wisconsin Rapids Division maintenance superintendent in addition to his new duties.

A native of Wisconsin Rapids, he joined the company in 1915. He has been maintenance superintendent of Wisconsin Rapids Division since 1919.

Organizational Changes at St. Croix Paper

George Fuller, St. Croix Paper Co. general superintendent, has announced that he is planning on retiring in early 1959. This has necessitated several organization changes as follows:

E. P. Ingalls Jr. has come with the company as production manager, and will be responsible for the production operations of the St. Croix Paper Co. The operating heads of the paper mill, sulphite mill, groundwood mill and woodroom will report to him.

Mr. Ingalls has been employed with the S. D. Warren Co., Westbrook, Maine in various production operations. For the past four years he has been assistant production manager at the S. D. Warren, Central Mill at Muskegon, Mich.

Jefferson Farmer, who came with St. Croix in 1956 as plant engineer, after many years of service with Hollingsworth & Whitney Co., is being promoted to the position of service manager. His duties in this newly created position are the co-ordination of the various service departments of the mill, namely, steam department, electrical department and plant engineering department, as well as operations of the yard.

Jack Vozella, who came with the St. Croix in 1957 as assistant plant engineer, is being promoted to the position of plant engineer and will be responsible for the operation of the mechanical, maintenance and engineering departments.

2 OF 7

Five similar digesters previously left Wyatt's Houston Plant for Installation in an Expanding Paper Mill in Louisiana.

The seven digesters were fabricated from 1½-inch and 1¼-inch plate ASTM A. 212 B.F.B. with special chemical analysis on copper, carbon and silicon.

WYATT METAL & BOILER WORKS, INC.

FABRICATING PLANTS:

Houston • Dallas • Corpus Christi • Mexico City

SALES OFFICES:

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Subsidiaries

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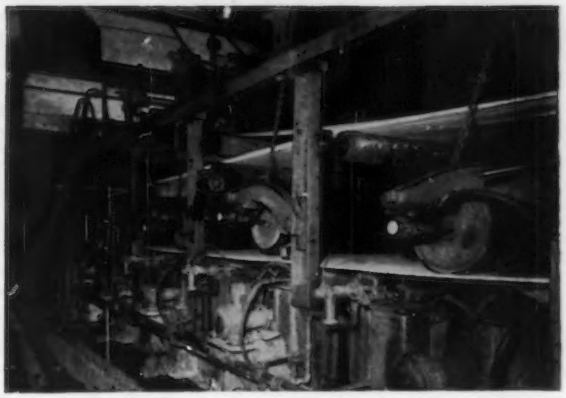
MANUFACTURERS AND ERECTORS SINCE 1913

Winding wire, rods, and facing cloth of Armco 18-12 Mo ELC (Type 316L) Stainless Steel have been in service on this extractor roll for more than a year. Inspection shows the stainless to be in excellent condition. The roll is in the Montville, Connecticut, plant of Federal Paper Board Company, Inc., Bogota, New Jersey.

Federal Paper Board Switches to Armco Stainless Steel to Increase Service Life of Extractor Rolls



More than a year ago, Federal Paper Board Company, Inc., changed from a non-ferrous metal to Armco 18-12 Mo ELC (Type 316L) Stainless Steel for the facing cloth, winding wire, and rods on their extractor rolls. These parts are still in excellent condition. They're expected to give many more months of trouble-free service.

Mills everywhere are experiencing longer service life from cylinder molds, extractor rolls, washers, and save-alls by changing to stainless steel for facing cloth, winding wire, and rods. For example, one mill reported that their stainless steel cylinder molds lasted from *three to four years*. This compares with average service life of only six months for a non-ferrous metal previously used.

WRITE NOW

We'll gladly supply you information on how Armco Stainless Steels provide longer service life for equipment, help keep stock clean, and save money for paper and pulp mills. Just fill in and mail the coupon for a free copy of our booklet, "A Stainless Profit Story for the Paper Industry."

ARMCO STEEL CORPORATION, 2288 Curtis St., Middletown, Ohio

Send me a copy of "A Stainless Profit Story for the Paper Industry."

New steels are born at Armco

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POSITION

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ARMCO STEEL

Armco Division • Sheffield Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products

Hall Named to Post at Champion

Champion Paper and Fibre Co. has appointed Ryan B. Hall administrative assistant to the office of the president.

Mr. Hall, formerly vice president and general manager of Haeckl's Express Inc., is a past president of the Hamilton Chamber of Commerce and has authored and produced two nationally distributed slide presentations on safety.

CZ Announces Staff Changes

Crown Zellerbach Corp. has recently made the following staff changes:

Raymond E. Tenzer joins Western-Waxide Division as plant engineer, San Leandro plant. Mr. Tenzer was with Kaiser Aluminum at Tacoma, Wash.

E. J. Whelan, Gaylord Container Corp. assistant by-products supervisor, Bogalusa—to Gaylord superintendent of chemical products, Bogalusa. Mr. Whelan has been a member of Gaylord's technical department for 25 years.

W. R. King, Gaylord laboratory supervisor, Bogalusa—to Gaylord assistant superintendent of chemical products, Bogalusa. He joined Gaylord in 1950.

Leo N. Lynch, Gaylord colorist, Bogalusa—to Gaylord supervisor, laminating department, Bogalusa. Mr. Lynch has been with Gaylord since 1946.

Wales H. Newby, Gaylord technical department chemist, Bogalusa—to Gaylord laboratory supervisor, Bogalusa.

Mr. Newby joined Gaylord in 1956.

Gardner Makes Lockard a VP

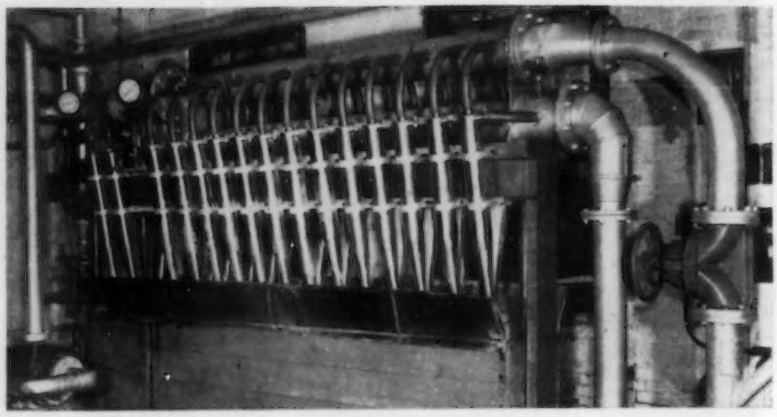
Floyd W. Lockard, who has been on special assignment with the vice president of Diamond, has been appointed vice president of finance with the firm's Gardner Division, Middletown, Ohio.

The division also promoted Ralph Anderson to supervisor, carton specifications, at the Lockland plant, and moved Ken Jones, of Franklin, up to senior project engineer.

Burdell Transfers to Watervliet

Watervliet Paper Co. announces that Carl L. Burdell has accepted the position of chief engineer. Mr. Burdell, who has been serving as plant engineer at Allied Paper Co. in Kalamazoo, succeeds Louis J. Scheid, recently named director of manufacturing.

NEW EQUIPMENT AND SUPPLIES



Automatic Purge on New Stock Cleaner Prevents Plugging

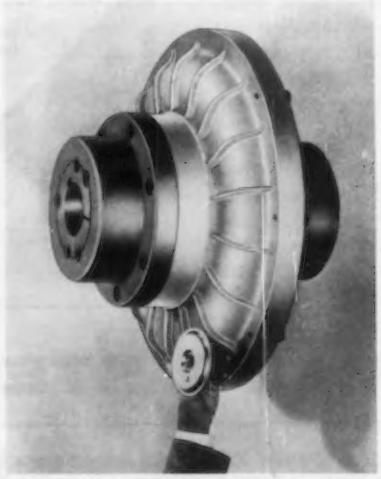
Bird Machine Co., South Walpole, Mass., is manufacturing a new, free vortex, drop-in-pressure cleaning unit known as the Bird Cyclean, designed for effective, economical removal of shives, fine and light dirt from pulp or paper stocks.

Bird Cycleans, built of stainless steel, are available in 4 inch diameter, with inlet capacity of 36 g.p.m.; in 7 inch diameter, 120 g.p.m. inlet capacity; and in 12 inch diameter, with 500 or 850 g.p.m. inlet capacity. Pressure drop is 50 p.s.i.

A noteworthy design feature of the 4 inch Cyclean is its non-plugging, automatic purge tip. This is said to overcome the tendency to plug that has hitherto limited the application of cyclone cleaning units.

The installation pictured shows a battery of 36 Cycleans at a specialty mill. It has resulted in a significant improvement in cleanness and uniformity of the paper. The paper machine now runs through the entire week without shutdowns for wash-ups, as compared with daily shutdowns before the Cycleans were installed. The mill reports that wire life has been materially lengthened due to elimination of grit and dirt.

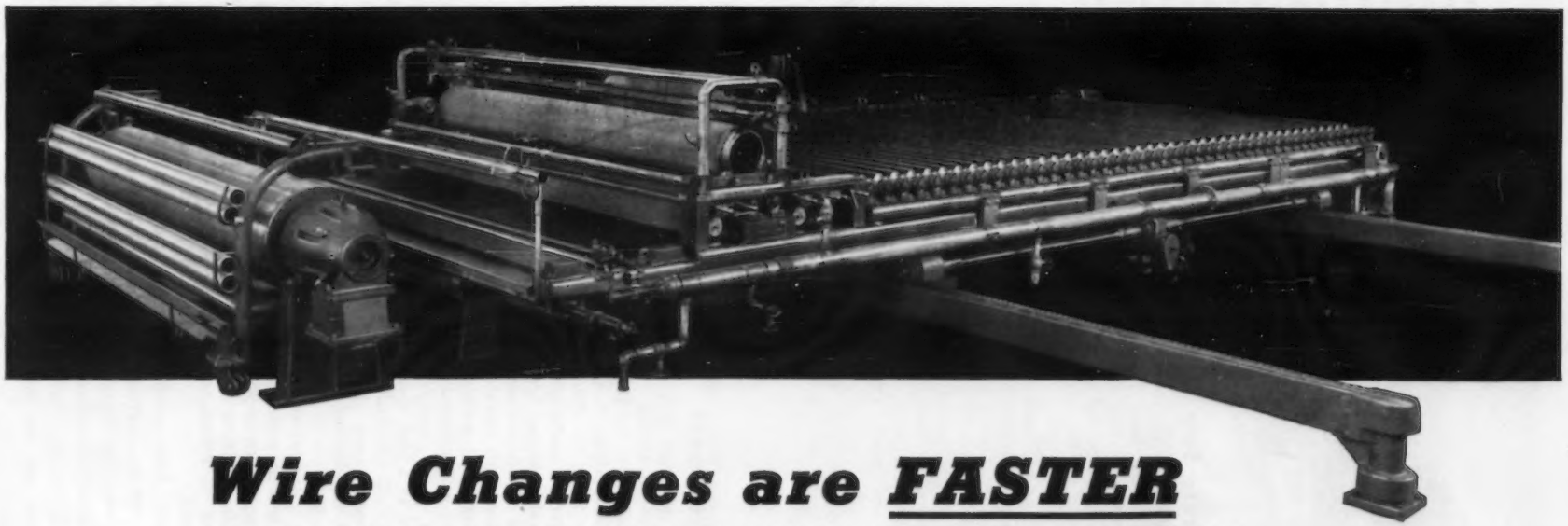
Expanded Line of Flexidyne Drives



An expanded line of Flexidyne dry fluid drives and couplings ranging in capacity from one-fourth to 1,000 horsepower, is announced by Dodge Manufacturing Corp., Mishawaka, Ind.

Added to the line are three larger sizes and a new small size for low horsepower applications. An 18-inch diameter Flexidyne is now available either as a drive for use with V-belts, or as a coupling for direct shaft-to-shaft connection. It will deliver up to 200 horsepower at 1,200 r.p.m. Next larger size is the 22CK, available only as a coupling and capable of transmitting up to 800 horsepower at 1,200 r.p.m. Largest of the new units is a 27-inch coupling, 27CK, with a horsepower rating of up to 1,000 at 900 r.p.m.

The new larger sizes have been field tested extensively and have proved their effectiveness on a wide variety of applications including conveyors, fans, proc-



Wire Changes are FASTER

WITH THIS MANCHESTER ROLL OUT FOURDRINIER

From hydraulically operated breast roll assembly to cantilevered suction couch, this 130" x 75' Manchester Roll Out Fourdrinier was designed to *consistently* produce top quality papers at low cost.

This means simple but precise control of formation, easy maintenance, and *exceptionally fast wire changes.*

As just one example of many advanced design features, the entire dandy roll assembly—including roll, showers, hydraulic motor drive, deckle and trim squirts—can be removed *with only one crane lift.*

See Manchester before you plan your next new paper machine or rebuild. We'll offer you some interesting money-making and money-saving ideas.

Specialists in Designing and Building Paper Mill Machinery

THE MANCHESTER MACHINE COMPANY / Middletown, Ohio

essing machinery, chippers, mixers, and pumps.

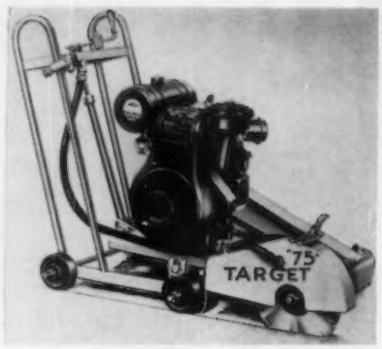
For medium light applications such as cranes, fans and small conveyors, the manufacturer has added a six-inch Flexidyne. This unit, available as a coupling or for use with V-belt drives, is rated at up to two horsepower at 1,800 r.p.m.

As a controlled acceleration device, the drive employs a new principle for transmitting torque from motors or engines to driven machines. The "fluid" in Flexidyne drives and couplings is heat treated steel shot. A measured amount, called the flow charge, is contained in the housing, which is keyed to the motor shaft. When the motor is started, centrifugal force throws the flow charge to the perimeter of the housing, packing it between the housing and the rotor, which transmits power to the load. After an initial period of slippage, housing and rotor become locked together and achieve full load speed, operating without slip and with 100 per cent efficiency.

Faster Strapping Claimed for Air Powered Tool

A more efficient tensioning tool for heavy duty strapping has been announced by the Signode Steel Strapping Co. of Chicago, Ill. It is reported easier and faster to load than conventional tools, and is said to save several cents worth of strapping on each operation by eliminating the curl of strap that is wasted when windlass-type tools are used.

There is no limit to the amount of strapping that the tool can take up. A powerful air motor does all the work of tensioning, and a built-in strap cutter works with a very light touch. It is reported fast and easy to use in any of three ways: strapping directly from the coil; using cut-to-length strap; or with strapping "pre-draped" on the packages. Weight is 20 pounds and the tool uses 1¼ inch heavy duty strapping.



Portable Concrete Saw

Light enough to lower into a basement or take up on a roof deck, the 9.2 h.p. Target portable concrete saw will go through any doorway, and reportedly cut efficiently in the most cramped quarters.

Cutting dry with low-cost Target reinforced abrasive blades, or cutting wet with abrasive or diamond blades, this versatile portable saw will handle any size job from sawing contraction joints in newly poured concrete in residence basements, plant floors, driveways, or sidewalks—to repair and patch work on streets, high ways, etc.

The saw is manufactured by Robert G. Evans Co., 6024 Troost Ave., Kansas City, Mo.

Flocculant Improvement

Production of an improved polyacrylamide-type flocculant known as Separan NP10 is announced by the Dow Chemical Co., Midland, Mich. A refinement of Separan 2610, its operational characteristics remain unchanged. All Separan 2610 production has been converted to Separan NP10. Included among product improvements reported are higher purity, increased solution clarity and greater product uniformity.

In the pulp and paper industry, Separan NP10 is used as a high speed flocculating agent in such applications as filler retention, process water clarification, white liquor clarification and in flotation-type save-alls.

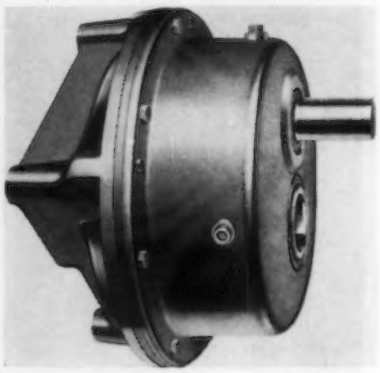
In water treatment it is used to improve the clarity of treated water, increase the settling rate of precipitated and suspended solids, increase the throughput of existing equipment and decrease treatment costs.

A synthetic, organic, water-soluble polymer, Separan NP10 has uniform effectiveness over a wide pH range. Manufactured as a white amorphous flake, the flocculant is dissolved in a dilute aqueous solution and fed into the effluent to be treated.

Dispersant for Pitch in Paper Mills

An improved pitch dispersant for paper mill systems using sulphite, semi-chemical, or groundwood pulps has been developed by Nopco Chemical, 60 Park Place, Newark, N. J. The rapidly dissolving product, called Nopcosant, is in the form of tiny, uniform beads that are reportedly lighter in color, dustless, and have a pH closer to neutrality than do similar products.

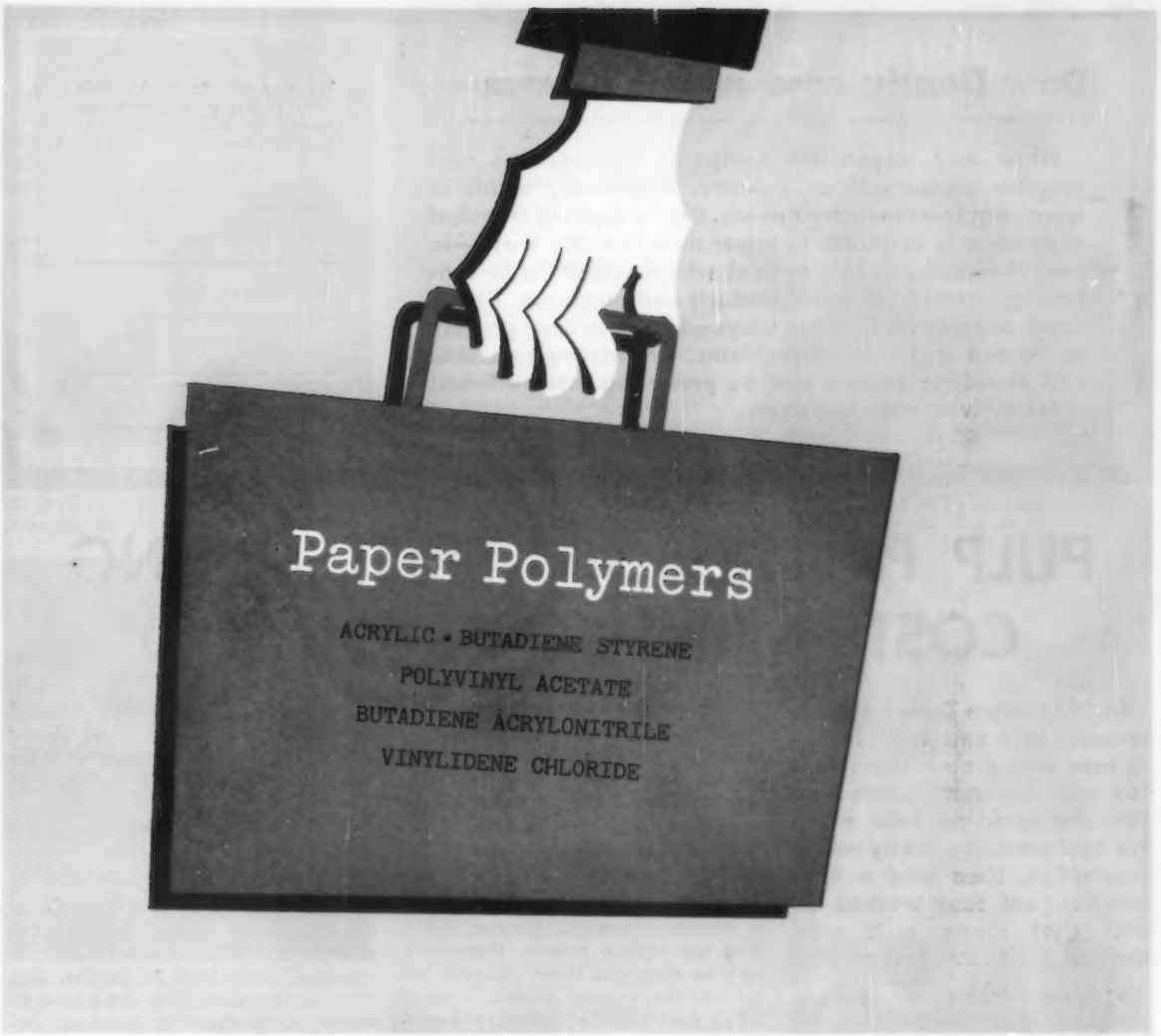
When added dry to the beater or the chests, Nopcosant keeps pitch suspensions free of agglomeration. The material forms clear solutions in hard or soft water. It is said to stabilize rosin size against premature coagulation and acts as a mordant for basic dyestuffs. Acting to help control growth of slime flora, the product enhances the flow properties of stiff paper coatings.



Compact Gear Drive Mounts on Machine

This compact gear drive bolts directly to the driven machine. In fact, the unit is designed with bearing capacities for overhung and thrust loads to allow installation of this drive into the driven machine as a geared pillow block, if desired. Thus it is possible to eliminate one machine bearing and cut down the overall size of the installation.

Falk flange mounted drives are built to American Gear Manufacturers Assn. recommendations and are available for horizontal or for vertical applications, with high speed shaft up or down. These rugged units are furnished from stock in single reduction for applications of .5-10 h.p., and in two double reduction ratios for .5-5 h.p. Detailed information on the drive is contained in Falk bulletin 7140, The Falk Corp., 3001 West Canal St., Milwaukee, Wis.



Borden is always on hand with expert technical service!

A trained Borden Technical Service Expert is anxious to help you profit with Borden polymers for pigmented and functional paper coatings. He will explain how Borden's *complete* polymer service can result in better products at lower cost for you.

If you're looking for coated papers with superior machinability—printability, grease resistance, abrasion resistance, fold, wet rub resistance, moisture vapor barrier—or if you need good functional base coatings . . . Borden will help you get them with the widest range of polymers in the industry. What's more, Borden paper experts will work with you every step of the way to adapt the right polymer product to your process.

Your Borden Representative is your direct line to the complete facilities of the Borden Research and Development Laboratories, where new products, formulations and application techniques are under constant study. And Borden plants and warehouses are strategically located throughout the country to assure prompt delivery of polymers when and where you need them.

So remember . . . if you're seeking a dependable source of supply for *all* your polymer needs, write today to The Borden Chemical Company, a division of The Borden Company, Polyco-Monomer Dept. PT-78, 350 Madison Avenue, New York 17, N. Y. You'll soon agree . . .

IF IT'S A *Borden* *Chemical* IT'S GOT TO BE GOOD!

Dow Depth: GOOD NEWS FOR PAPER

When any responsible company manufactures and supplies products to an industry, it naturally wants to learn about that industry's needs. Dow's depth of chemical experience is available to paper men in many ways—in new chemicals, in help with chemical problems, in continuing research for better products and processes. Dow's depth can pay off in many ways—by minimizing process water and waste water problems, by stretching pulping and bleaching dollars, and by producing more efficient preservatives and plasticizers.

You may wish to check certain items in this advertisement and forward to those concerned in your own company.

Route to:

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PULP PROCESSORS SETTLE RISING COSTS WITH SEPARAN NP10*

In 1954 when Dow began to acquaint pulp and paper industry men with a new filler retention aid, Separan®, some had difficulty realizing how much this new product actually would accomplish. Here was a filler retention aid that worked so well that many mill men doubted their own first results!

As an example, on paper machines Separan NP10 has cut costs as much as $15 per ton of paper by increasing filler retentions from 50% to 90%. "By adding a dilute solution (0.025% concentration) of Separan NP10 to the inlet side of the fan pump at the rate of 0.6 pounds per ton of paper, we saved $10 a ton when making 50-lb. offset," comments a mill superintendent. "This was accomplished by the reduction of both clay and titanium dioxide losses. Sheet formation was improved and displayed more uniform properties because of increased retention. This flocculant was one of our wisest investments."

In process water treatment, the story is no less dramatic. Separan NP10 does not replace primary flocculants, such as alum and ferric chloride, but reduces the amount needed. Separan NP10 does replace secondary flocculants such as activated silica. In most mills these reductions more than pay for the Separan NP10 used, while resulting in improved over-all water treatment efficiency. Here's what one mill superintendent reported: "The dense, compact, fast settling Separan NP10 floc enabled me to get one-third more throughput, cleaner and clearer water. This improved supply of water enabled me to operate more efficiently."

*SEPARAN NP10 IS AN IMPROVED FORM OF SEPARAN 2610.

USEFUL SEPARAN BOOK

"Separan 2610 In The Pulp And Paper Industry" gives complete information on how to use Separan NP10 and what it can do. Presents facts about filler retention, process water treatment, flotation type save-alls, and clarification of white water, white liquor, green liquor and bleach liquor. Available on request.

CAUSTIC SODA

. . . right as rain, twice as regular

Paper makers can't take many things for granted these days. The market is changeable, the economy nervous, overhead costs hard to predict. But there is one thing they don't have to worry about—that's a constant, dependable supply of Dow Caustic Soda. Dow caustic is always available in the exact forms and quantities you need. It moves into your mill from four producing plants and eight terminals. Traveling by specially equipped tank cars or barges on inland waterways, it arrives when you want it! In your paper mill—Dow Caustic Soda will do a top-notch job day in and day out.

DOW CHEMICALS

BASIC TO THE PULP AND PAPER INDUSTRY

Chemical Raw Materials • Pulping and Bleaching Chemicals • Preservatives Plasticizers • Glycols and Derivatives Methylcellulose • Emulsifiers • Solvents Aromatics • Caustic Soda • Hydrochloric Acid • Chlorine

NEW SWING
to Sulphite

A recently developed version of the sulfite process is interesting pulp producers on the lookout for major cost reduction. Magnesium hydroxide is the base. The process eliminates excess sulfur dioxide from the cooking liquor and employs a simplified recovery system.

A variety of mixed wood species can be pulped with low liquor-to-wood ratios with this magnesium bisulfite process. The results: increased savings. Chemical and semi-chemical pulping, using continuous digestion, are now definite possibilities. It's a self-sustaining operation with exceptionally low heat and chemical loss, no stream or air pollution. Higher yields of greater strength are produced.

Many varieties of wood can be economically processed by the new sulfite process.

★ ★ ★ ★

WE'D LIKE TO HEAR FROM YOU. For information about the "Pulp and Paper" chemicals discussed here and the many others that are improving processes and shaving production costs, contact Chemicals Sales Department 767L, THE DOW CHEMICAL COMPANY, Midland, Michigan.

YOU CAN

DEPEND ON

DOW

MORE GOOD NEWS

Notes of interest for pulp and paper

CHLOROTHENE

Keep electric motors, electrical equipment, machinery clean and operating efficiently with Chlorothene® (Dow 1,1,1-trichloroethane, inhibited). Versatile, cold cleaning solvent offers low toxicity, no flash or fire point.

SODA ASH

New Dow Texas facilities now produce top quality soda ash (58% light). You get alert service and on-the-spot deliveries every time. Dow Soda Ash handbook is immediately available upon request.

GLYCERINE

Glycerine is an excellent plasticizer . . . Dow's is the purest money can buy. Does the job on glassine papers as nothing else can. Dow Glycerine is available in three grades—synthetic, USP, USP 99.5%.

DOWICIDE

Black or blue mold growth can't form on lap stock during storage if it's treated with Dowicide® preservatives. Stop discoloration, loss of strength and paper forming qualities with this effective fungicide.

New Flakeboard Plant Begins Production at Tyrone

Production of this special type of particle board from wafer-thin wood flakes marks the entry of West Virginia Pulp and Paper Co. into the building products field.

A new plant designed to produce 25 million square feet of flakeboard annually for the furniture and building industries went into production early in July at the Tyrone, Pa., mill of West Virgina Pulp and Paper Co.

Start-up of the new operation marks the entry of West Virginia, one of the nation's leading manufacturers of paper and paper products, into the building products field. The new plant is operated under a newly-created Building Boards Division, headed by Division Manager J. Lyne Ferner.

John Holdsworth, formerly of Masonite Corp., has been named sales manager of the Building Boards Division and John W. Churchill, a flakeboard production specialist formerly with Timber Engineering Co., is superintendent of the flakeboard plant. The flakeboard will be sold largely in Eastern and midwest markets through building material wholesalers and dealers. Flakeboard is a special type of particle board which uses wafer thin wood flakes as opposed to the wood waste (sawdust, etc.) used in most particle boards.

The line of flakeboard products will be marketed under the company's brand name. Core stock will be produced for such uses as furniture, cabinets, flush doors, countertops and floor underlayment. Board with paper and plastic overlays and veneers of nearly every type of commercially available wood will be made for interior paneling and siding.

Process Description

Although strictly speaking this is not a pulp and paper operation, we are publishing a brief description of the process which we think our readers will find of interest.

Based on a patented design for dry, batch-type production the Tyrone operation includes a number of technological innovations new to the industry.

The process begins with the transport in tandem trailers of aspen logs five feet in length, which are stacked alongside a drag conveyor after being delivered from the wood yard to the flakeboard plant.

Flake Making

The logs are fed into the conveyor one at a time and proceed to an automatic slasher saw which continuously cuts the logs to 16-inch billets. The slasher saw is of Miller-Hofft design and is manufactured by B. L. Montague Co. of Sumter, S. C. Wood billets are then sent to three 8-knife, 3½-ton flaking machines of Miller-Hofft design, built by West Engineering Co.

After being cut to proper size, the flakes are air conveyed to a hammermill made by the Jeffrey Manufacturing Co., where they are reduced in width. A bypass is incorporated in the air conveying lines so that the flakes may go through production without being hammermilled.

Flake Drying and Blending

From the hammermill the flakes are air conveyed to a Heil Co. revolving drum type flash dryer. Flakes entering this dryer have a moisture content of 80 to 100 percent and are dried to 5 to 6 percent on an oven dry basis.

The dry flakes are next classified in a Productive Equipment Corp. single deck screen. At this point, fine material is air conveyed from the screening operation to a 15,000 cubic foot storage silo. This silo was designed by Miller-Hofft and operates on the live bottom principle, with a revolving screw removing flakes through the silo center. The 15,000 cubic foot capacity is sufficient to run the pressing facilities from six to ten hours. The level of flakes in the dry silo storage is indicated at the stations of both the flaker operator and the mat forming operator.

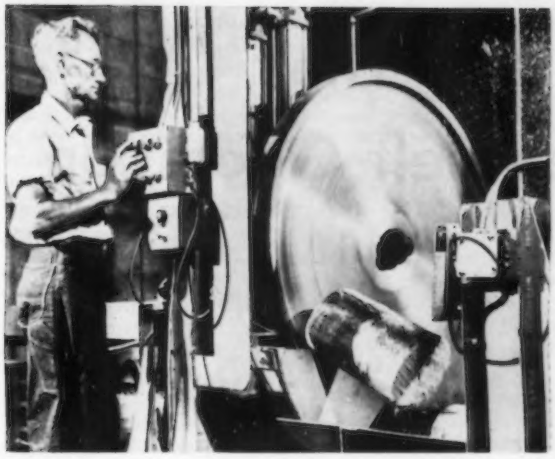
A Heil feeder under the silo provides a controlled flake feed rate to the flake resin blender. The flakes are then conveyed to a Syntron vibrating feeder which further smooths out any inconsistencies in the flake flow. A Merrick weightmeter automatically indicates the rate of flow in pounds per hour and also gives the weight of the total material which passes over the scale.

The flakes are fed into a continuous paddle type blender where wax and resin are alternately sprayed over them. The treated flakes are conveyed from the blender to a live bottom surge bin in the forming line. The blending operation is accurately controlled by a Foxboro ratio control system and various Weighing & Control Components Inc. recording scales.

Forming and Pressing

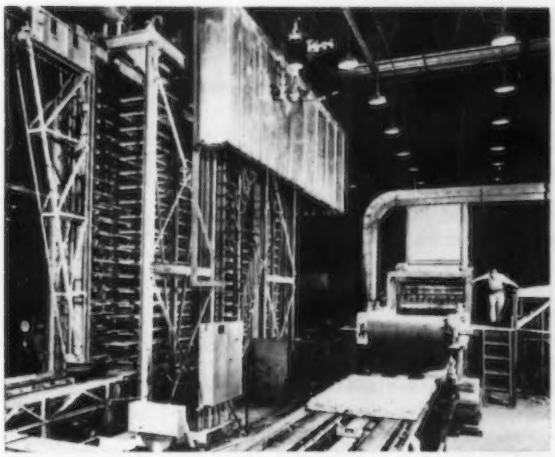
The forming or felting section of the plant is Miller-Hofft designed, and a system of adjustable leveling screws meter the blended flakes uniformly onto aluminum caul plates.

The mats of blended flakes are conveyed from the forming section through a continuous inclined plane belt precompression unit. From this prepress the mats are transferred at right angles to the forming line where each mat is

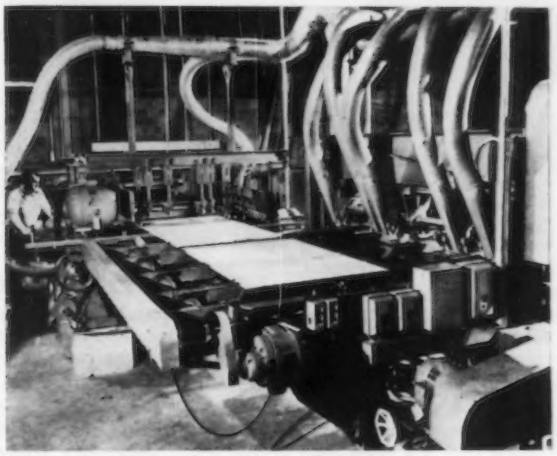


PEELED ASPEN LOGS, chain fed to this 48-inch circular trim saw, are automatically cut to 16-inch billet size.

LOG BILLETS are hand loaded into chain driven chutes which feed three mammoth disk flaking machines.



MAT OF RESIN-COATED FLAKES in foreground has gone through prepress unit and is ready for 20-opening hot press at left.



AUTOMATIC TRIM SAWS cut pressed boards to desired dimensions. Boards are then finished to thickness by drum sanding unit.

automatically trimmed and weighed for assured uniform density control.

The compressed and trimmed mats are next conveyed into the press loader which holds a full press load of mats. The pressing system was furnished by Washington Iron Works Inc. and inincludes fullly automatic loaders and unloaders. Each press load is compressed for a predetermined length of time under high and low pressure cycles. At the completion of the low pressure cycle, the press automatically opens and the press load of boards is ejected into the press unloader. From the unloader, boards are removed one at a time and separated from the aluminum cauls. The cauls travel on to the forming section while the sheets are automatically stacked in piles of 30 or 40 boards. Since the sheets are formed dry there is no need for drying after pressing.

Finishing

Stacks of boards are removed from the automatic stacker and taken to the warehouse for storage by fork-lift trucks. The stacks of boards are stored for a minimum of three days before being finished. Unfinished boards are inventoried in the warehouse according to thickness and commodity classification.

As ordered, stacks of boards are removed from the warehouse. Trimming and sizing is accomplished on a Mereen-Johnson 600 and 435 double pass saw unit. The boards are automatically conveyed from the saws to a Yates-American S-800 eight-drum sander. The precision sanders maintain the thickness of the board within tolerances of 5/100ths of an inch and account for extremely smooth surfaces.

Durand Machine Works automatic conveying equipment is used in the finishing operation. Boards are automatically fed in and out of the saw units and through the sander. From the sander the boards can be automatically sorted, and stacked. When unsanded boards are being produced, there is also an automatic sort and stack operation after the trimming operation.

After the finishing operation, the boards are either placed in finished storage, packaged and loaded for shipment, or placed back in process for overlaying with various veneers, papers, or other materials.

Chemical Treatments and Their Influence on Improved Felt Operation

C. C. Gordon
Chief Chemist
Albany Felt Co.

and

S. S. Engle
Chief Designer
Albany Felt Co.

Modern heat treating dryer at Albany Felt Co. This custom-built dryer permits the use of many new treatments on even the widest felts.

In spite of the extensive research and development program instituted many years ago by the Albany Felt Co. in the field of chemical treatments for papermaker's felts, it is only within the last five or six years that the value of treated felts has been truly recognized. Most mill managers and superintendents now realize the tremendous benefits that they can obtain through the use of properly selected and applied treatments.

A major factor in awakening this interest has undoubtedly been the fact that in today's highly competitive market, the papermaker must take advantage of anything which will help cut manufacturing costs. The increased daily production and improved felt operation that can be obtained by chemical treatments achieve just that result.

Reducing Chlorine Damage

As a concrete example, a manufacturer of facial, wiping and other tissue specialties found that the pickup felts on his Yankee fourdrinier machine weakened badly after two weeks running. Laboratory analysis revealed these felts were damaged by excessive chlorine in the shower water. It was learned that chlorine was being introduced to eliminate hydrogen sulphide in their well water which otherwise quickly caused the felt to blacken and fill up.

Our technical staff pointed out that the reaction of chlorine with sulphide takes place in two stages. Since the sulphide is destroyed after the first stage, and before free chlorine appears in the water, it was suggested that the amount of chlorine be reduced gradually to determine a concentration which would neutralize the sulphide and yet allow good felt life. Our Z-5 treatment was also suggested to make the felt more resistant to chlorine. These combined recommendations have gradually increased felt life to 18, 20, and even 25 days!

Combating Bacterial Degradation

Still another example—last summer a paper mill manufacturing fine papers reported that one of our super press felts had given them only one-half the anticipated life on the second press of their machine, having been removed after only six days of operation. We requested that the customer return the felt for a careful examination and analysis by our customer service laboratory.

At first glance, the felt appeared to have undergone the usual stages of normal degradation—the nap was worn off completely, leaving the felt threadbare. Of course, these results should not have occurred so prematurely, but, nevertheless, casual observation might lead one to believe that the felt's condition was the result of normal mechanical wear. Subsequent laboratory analysis, however, revealed bacteria were responsible for the felts' deterioration. Consequently, we made another felt for this position, giving it our special W-6 anti-bacteria treatment and rushed it to the mill. With this felt, and subsequent felts for this position (similarly treated), felt life immediately jumped back to 12-18 days.

Certainly the advances in the use of synthetic fibers and chemical treatments have made possible not only an industry-wide extension of felt life, but have also provided the felt designer with new tools to meet the quality as well as increased production demands of the faster and larger machines. It is the purpose of this discussion to describe some of the major kinds of treatments now available, their advantages, limitations and some typical applications.

Types of Felt Treatments

Although chemical treatments date back to the 1920's, the great majority

of those presently available have been developed only in the past few years. This coincides to a great extent with the tremendous growth of synthetic resins with their myriad variations both in properties and performance. Like the synthetic resins, the possible variations in chemical treatments are almost limitless. However, experience has shown that there are six major types into which all of these can be grouped:

Wetting Agents—are designated as "D" Treatments by Albany Felt Co. These help a felt wet up more quickly and assume its normal running condition on the machine. Consequently, they are invaluable in enabling machines to reach full production in the shortest possible time.

Toughness Treatments—are used to improve the overall toughness of a felt. They provide slightly more stability to the felt and improve its water removal characteristics. Both the "F" and "S" series of treatments belong in this group. The "S" treatment, which is slightly greyish-white, colors felts only slightly. The "F" treatment is light to dark brown and is, therefore, most frequently used on multi-cylinder felts.

Softening Treatments for Better Water Removal—Generally, our J-3 treatment is the best known in this category, particularly for its ability to keep felts soft and open throughout their life on the machine. This results in improved felt drainage qualities and increased production. Our newer H-32 treatment is equally outstanding along these lines. Both treatments have been used with great success on practically all types of machines. The J-3 treatment is pink to reddish in color, while the H-32 is a reddish tan. They also provide stability for size along with increased toughness.

Wear Resistant Treatments—which include both the "H" and "U" treatments, impart outstanding wear resistance to felts as well as extra stability. Like the "J-3" treatment, they also provide good water removal properties. However, resistance to frictional wear is their primary function. In color, these range from white to red to brown. Incidentally, we might mention that the colorless treatments are particularly helpful for mills where colored fibers are a problem.

Bacteria Resistant Treatments—As we have already mentioned, our W-6 treatment has achieved an outstanding reputation for resistance to bacteria. Unlike some treatments for this purpose, W-6 is so firmly fixed that its effect is retained throughout the life of the felt. In most cases the treatment is able to prevent damage from bacteria entirely; but, even in heavily contaminated systems with virile species, the detrimental effect on the felt is greatly reduced.

Alkali and Chlorine Resistant Treatments—These treatments, which we designate as "Z" treatments, are very helpful in minimizing felt damage by alkali or chlorine. They show their greatest value in cases where the concentration of either of these chemicals is too high for an untreated felt, yet not so severe as to preclude entirely the use of wool. As an added benefit, these treatments are also bacteria resistant.

Most of these treatments are air dried and, once applied, require no further processing. A few, however, develop their optimum properties only upon the application of heat under carefully controlled conditions.

From the foregoing, it is apparent that chemical treatments can be used in many ways to modify and improve the basic properties of a papermaker's felt. With so many types of paper machines, each with its own conditions and requirements, it is also apparent that no single treatment will give all types of felts all the properties required.

Choice of Treatment

The choice of treatment obviously must be left to the felt designer. During his consideration of the right blend of wool, yarn size, weave, and a multitude of other manufacturing details, he can also select—with the assistance of the chemist if necessary—the best treatment for the felt. In this way a "well rounded" felt can be designed whose characteristics will best fit the multiple requirements of a specific paper machine position.

Whether designing a new felt or modifying an existing one, the felt designer and the chemist both need machine and mill data—lots of it—upon which to base their design, chemical treatment and manufacturing specifications. Such things as roll width, sheet width, running length of felt, position on the jacks, kinds of stock, pH, vat temperatures, how felts wear out, filling-up problems and other similar details are of vital interest.

Analytical studies of used felts conducted by our customer service laboratory are often of particular value to the papermaker in helping him find and correct machine problems. For example, by plotting the closeness or strength of a used felt at short intervals across its width, it is frequently possible to identify machine deficiencies such as worn rolls, improper crowns, or inadequate cleaning equipment. These findings can be particularly helpful when combined with an analysis of the material filling up the felt. The latter can then be used as a basis for suggesting improved cleaning methods.

Measurements of felt degradation resulting from contact with chlorine have also been useful in improving felt life. This chemical is being used more frequently in paper mills as a bleach and for slime control in the recirculated white water. Though quite effective for these purposes, it can shorten felt life considerably if used in excess.

Information Needed

In any of these studies, the analysis made by the chemist can be much more productive when he is supplied with the following information:

1—Why are felts removed?
- a—Filled up?
- b—Worn out all over or on one surface?
- c—Streaks—general or localized?
- d—Improper size?

2—What are the characteristics of the furnish?
- a—pH?
- b—Temperature?
- c—Kind of fillers?
- d—Softening agents?
- e—Are resins added?
- f—Is bleached stock used?

3—What are present cleaning methods?
- a—Whippers?
- b—Cleaning "on the fly" — how and where is solution added?
- c—What cleaning agent is used—how often and with what success?
- d—Describe cleaning method with sheet off.

"Advances in use of synthetic fibers and chemical treatments have made possible not only extension of felt life, but have provided the felt designer with new tools to meet the quality and increased production demands."

"The importance of full information to the felt designer and chemist in solving paper mill problems or boosting the over-all level of felt performance cannot be over-emphasized."

4—Is chlorine used?
- a—Added where?
- b—For what purpose?
- c—How much?
- d—Is "residual" tested regularly? What is considered normal?

5—What changes have been made?
- a—In speed?
- b—Weight or kind of paper?
- c—Furnish?

Examples of Felt Problems Solved

The importance of such information to the felt designer and chemist in solving paper mill problems or boosting the over-all level of felt performance cannot be over-emphasized. A few brief examples in which adequate knowledge of mill conditions formed an essential background to the solution of a particular problem will illustrate the point.

I—We supplied three trial plate press felts for the first suction press of a fourdrinier machine; two were untreated and one was given our J-3 treatment. The initial two untreated felts ran eight and eight and one-half days life respectively and then had to be removed because they were filled up. However, the J-3 treatment felt lasted a full eighteen days, remained open and gave good drainage throughout its life.

II—A manufacturer of paper board on a multi-cylinder machine, was experiencing premature failure of the top felts. Examination of a full width strip of one of the used felts in our laboratory indicated severe inside frictional wear along the back edge of the felt. All attempts by the customer to locate the cause of this were of no avail.

The felts were treated with colorless H-42 Treatment for improved wear resistance, and life subsequently increased from nine to twelve days with improved drainage and operation.

III—A manufacturer of kraft paper was using common wet first and second felts with our J-3 treatment. Average life of these treated felts was twenty-one and one-half days. In an attempt to further increase operating efficiency and reduce costs, a laboratory investigation was made of the wear resistance of the felts under conditions similar to those existing in the mills.

As a result a wear-resistant H-32 treatment was given subsequent felts and life rose to twenty-six days.

IV—A manufacturer of asbestos-cement pipe was experiencing premature felt failure. The stock furnish was highly alkaline.

After a study of the old felts and the alkalinity of the furnish, a Z-5 treatment was recommended for the felts. Felt life was increased by twenty percent over the untreated felts. Naturally, all subsequent felts were treated.

From the foregoing discussion it can be seen why selection of the best combination of felt design and treatment requires such close cooperative effort between paper mill superintendents and operators, felt sales and service engineers, and the felt designer and chemist. Though time consuming, cooperation of this kind definitely pays off in more saleable tons per day.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1958	May 31 81.3	June 7 82.2	June 14 87.4	June 21 88.5r	June 28 81.7
1957	June 1 90.4	June 8 94.1	June 15 94.8	June 22 92.1	June 29 92.2

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	86.9	89.5	89.5‡	87.4‡	86.4‡	—	—	—	—	—	—	—	—
1957	94.2	97.0	97.1	94.0	94.6	93.3	75.6	90.7	86.0	93.0	90.7	81.5	90.9

‡Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1951	1952	1953	1954	1955	1956	1957	1958
Year to Date	100.3	91.9	93.5	93.2	95.9	101.1	94.6	87.1
Year Average	98.0	88.6	92.3	91.6	94.0	97.9	90.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

1958	May 31 83	June 7 77	June 14 90	June 21 88	June 28 89
1957	June 1 88	June 8 86	June 15 94	June 22 93	June 29 92

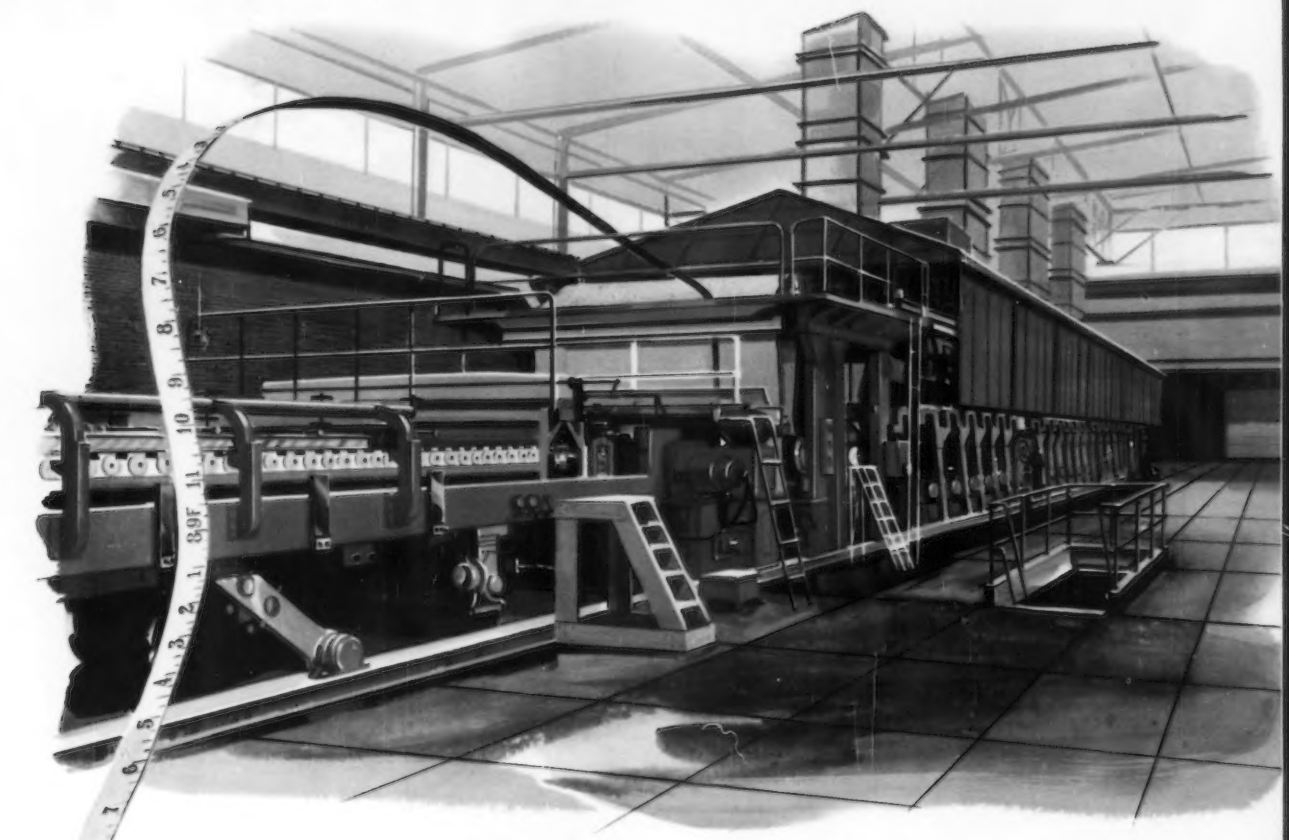
COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	80	86	88	84	84	—	—	—	—	—	—	—	—
1957	91	94	94	92	93	91	72	94	91	97	92	79	90

† *Percents of operation based on "Inch-Hours" reported on a 6-day basis.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING June 28, 1958	LAST WEEK ENDING June 21, 1958	CUMULATIVE TO DATE Jan. 1 to June 28, 1958
% Activity	89%	88%	85%
	Tons	*Tons*	*Tons*
Total Production	277,429	270,117	6,681,908
Liner	86,443	88,702	2,180,253
Corrugating Material	41,210	37,894	986,687
Chip & Filler Board	5,422	5,355	123,221
Total Containerboard	133,075	131,951	3,290,161
Folding	54,428	55,302	1,319,617
Set-Up	10,622	11,361	267,749
Special Food Board	27,627	27,476	640,819
Other	51,677	44,027	1,163,562
Total Boxboard	144,354	138,166	3,391,747
Total Orders	*Tons*	*Tons*	
Received	272,519	253,065	
Unfilled End of Week	356,484	366,756	



Made to measure?

That's only half the story.

Consider the custom tailor. He studies his subject thoroughly, designs his tailoring to meet individual requirements and takes progressive measurements to assure a fine fitting garment.

Huyck does even more. Huyck studies all felts every step of the way from the sheep's back to the finished paper product including a careful evaluation of the machine performance of each Huyck felt.

This close scrutiny, literally from the cradle to the grave, spells the difference between ordinary performance and that of new Huyck felts.

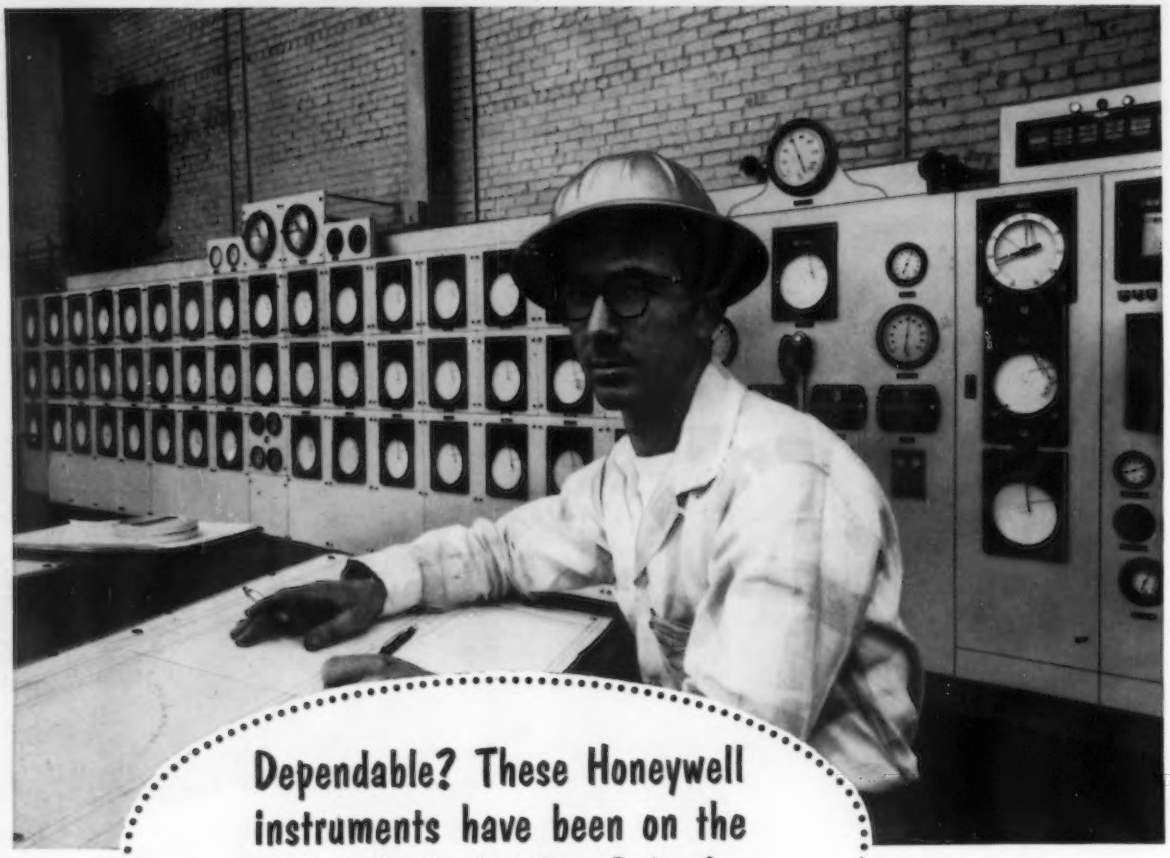
KENWOOD TEXTILE PRODUCTS

F. C. Huyck & Sons,
Rensselaer, N. Y.;
Aliceville, Ala.;
Peterborough, N. H.

In Canada: Kenwood Mills Ltd.,
Arnprior, Ontario.

NEW HUYCK FELTS ★ INDUSTRIAL FABRICS

FIRST IN QUALITY • FIRST IN SERVICE SINCE 1870



Dependable? These Honeywell instruments have been on the job at North Carolina Pulp Co. for over 10 years!

In instruments, dependability is as important as accuracy. You can't gain the full advantage of automatic control without it.

The dependability you can expect of Honeywell instruments is well demonstrated at North Carolina Pulp Company, Plymouth, N.C. Here, many Honeywell instruments have been in operation since 1938, and are still going strong. In the turbine room shown above, some 54 Honeywell recorders, controllers, indicators and flow integrators average well over 10 years of accurate, reliable service, with minimum maintenance.

You can see other examples of the long-term dependability of Honeywell instruments in mills across the country. Profit by it in your own mill. Your Honeywell field engineer can show you how. Call him today. He's as near as your phone.

MINNEAPOLIS-HONEYWELL, Wayne and Windrim Avenues, Philadelphia 44, Pa.

Honeywell

H HONEYWELL *First in Control*

New Glass "Papermaker" Fibers

PRODUCE DIMENSIONAL STABILITY

Glass Fibers form a rigid matrix—stabilizing the effect of moisture in cellulose sheets.

Because of their small diameter—8 to 150 times finer than a human hair—glass MICRO-FIBERS:

- Readily disperse in beater.
- Permit faster draining—faster drying.
- Do not impair printability of finished paper.
- Cause no skin irritation.

Investigate the economics of using glass "papermaker" fibers in combination with other fibers. Consider the new products you would be able to produce.

Available in five diameters (average) ranging from 3.5 to 2 microns.

Using conventional papermaking equipment and processes, a small percentage of glass MICRO-FIBERS contributes to dimensional stability in cellulose papers—during manufacturing *and* in the finished product.

PROPERTIES:

Dimensionally Stable . . .
Micro-Fibers will not stretch or swell.

Moisture Resistant . . .
Micro-Fibers retain high strength when wet.

Inorganic and Inert . . .
Micro-Fibers resist most corrosive fluids.

Economical . . .
Micro-Fibers are ready to use.

For more information about glass "papermaker" Micro-Fibers write to L·O·F Glass Fibers Co., Dept. 55-78, 1810 Madison Avenue, Toledo 1, Ohio.

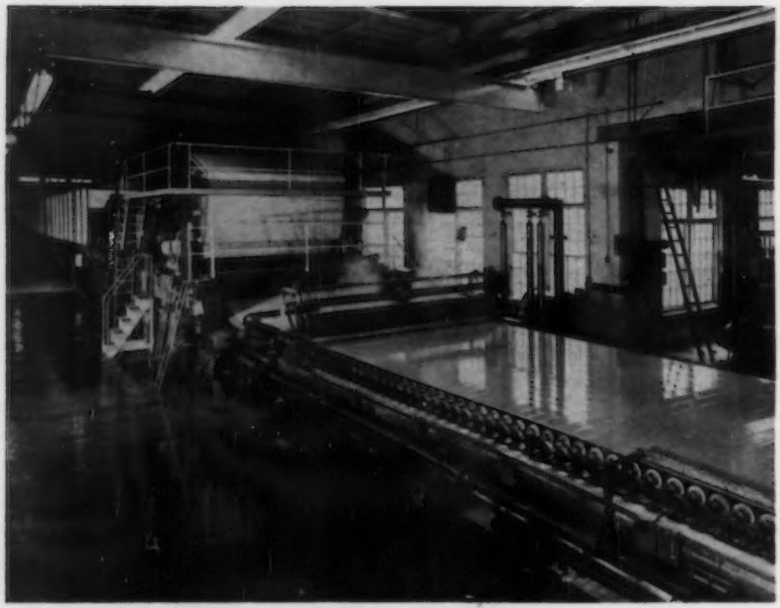
L·O·F GLASS FIBERS

L·O·F GLASS FIBERS COMPANY

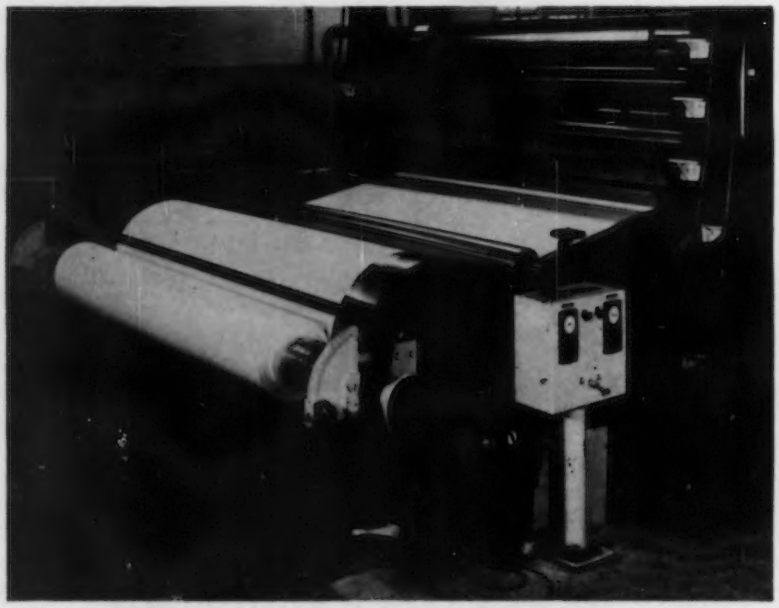
TOLEDO 1, OHIO

Rebuilding a paper machine at Crocker Burbank for . . .

Higher Quality, More



NEW FOURDRINIER allows 100 per cent increase in production rate. It is equipped with 50 per cent longer, slightly wider wire than old machine.



REEL is a uniform speed, air-operated horizontal type. New rope carrier system has also been installed from the second press to the calender stack.

Greater versatility and higher production rates were the requirements for the rebuild of No. 4 paper machine at the No. 7 mill of Crocker Burbank & Co., Ass'cn. in Fitchburg, Mass. This is the story of how the old machine was rebuilt for these requirements. Simultaneously with the rebuild program, Crocker Burbank did a considerable amount of construction work, including a new roof on the machine room, the installation of a new dryer hood and a new tiled couch pit. The job was accomplished in a period of only eleven weeks.

Initial discussions concerning the rebuild were on the basis of a maximum speed to be accomplished through installation of a new fourdrinier with a somewhat longer wire and a small addition to the dryer section. However, as plans progressed, it became apparent that a more versatile machine would be desirable and that higher production rates would likewise be helpful.

Description of Rebuilt Machine

The old machine was shut down October 21, 1957 and the rebuilt machine started up January 2, 1958. In the meantime, all erection work necessary, including disassembly of the old machine, relocation and assembly of the new machine, was done by Crocker's own staff headed by Kenneth Jackson of the engineering department. A supervising erector was provided by Manchester Machine Co. to work with Crocker Burbank in the rebuilding job.

For No. 4 machine, a new headbox with wet deckle width of 127-inches was furnished by Valley Iron Works. A new fourdrinier section, with a 130-inch wide by 75-foot wire, was also installed. This is an increase over the old machine of 4 inches in wire width and 25 feet in length. Furnished by Manchester Machine Works, the fourdrinier section is completely removable from breast roll to couch. The breast roll and forming board may be raised and lowered as a unit by hydraulic cylinders mounted inside the shake rails.

The machine was also furnished with a full cantilever type suction couch

Production

24 inches in diameter by 134 inches face. There are suction boxes located before the 14-inch diameter, hydraulically-driven dandy roll and a suction box following it. Further water removal is accomplished with a Rotabelt which is located just ahead of the suction couch. The complete dandy roll assembly including drive, steam shower, and water shower is so arranged that it can be lifted clear for wire changing with a single crane lift. Trim and cut-off squirts are also handled with the same lift.

The roll-out mechanism for the fourdrinier section, used when a wire change is required, is driven through a worm gear reducer by means of an air motor, and the assembly is lowered onto roll-out rails by remotely controlled hydraulic jacks. Main side frames of the machine are stainless clad members rigidly cross braced by formed steel tie beams.

The press section, also furnished by Manchester, includes a suction first press, a plain reversing second press, and a smoothing third press.

Considerable relocation of the old dryers was necessary, and a new dryer section was installed immediately following the press section. The new dryer section consists of dryers 48 inches in diameter by 126 inches face. The existing dryers, which were somewhat smaller, were rearranged in two sections, one section following a new air-loaded breaker stack and one following the size press.

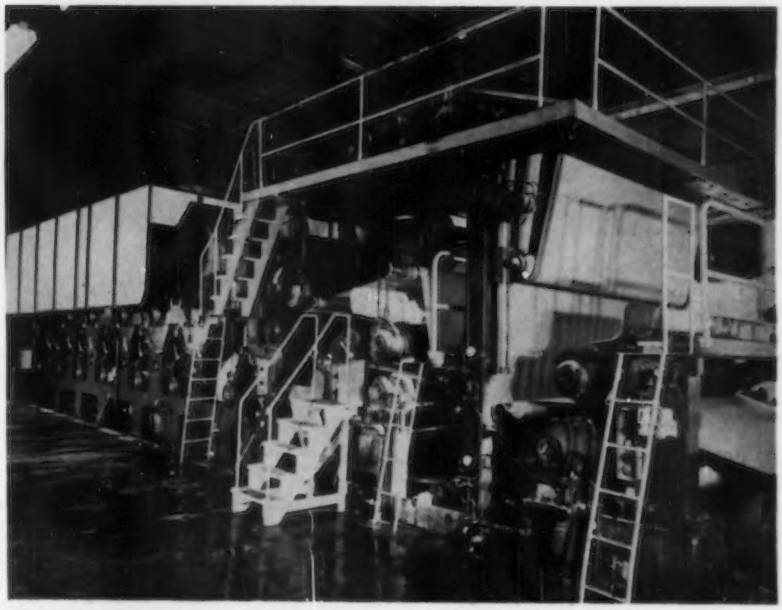
The machine has also been equipped with a new rope carrier system running from the second press to the calendar stack, and the existing size press modernized to provide air loading. Other new equipment for the machine is an air operated horizontal type uniform speed reel and an unwind stand, both furnished by Manchester Machine Co.

Drives

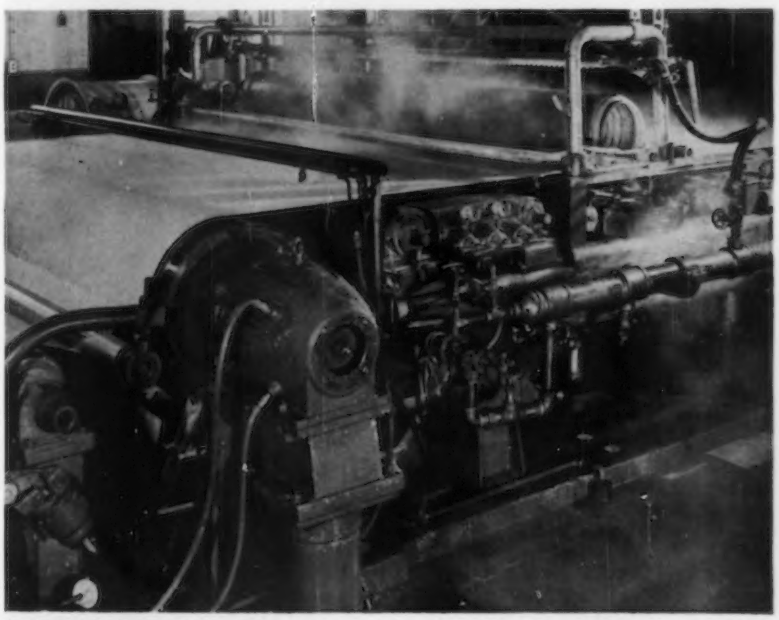
A new main prime mover line shaft was supplied by Crocker Burbank Separate new drives using taper cone pulleys and Falk spiral bevel reducers were supplied by Manchester for the couch, first press, first dryer section, and breaker stack. The size press drive was rebuilt to incorporate a Wichita air clutch of the same type installed in the other new drives.

Greater Production, Higher Quality

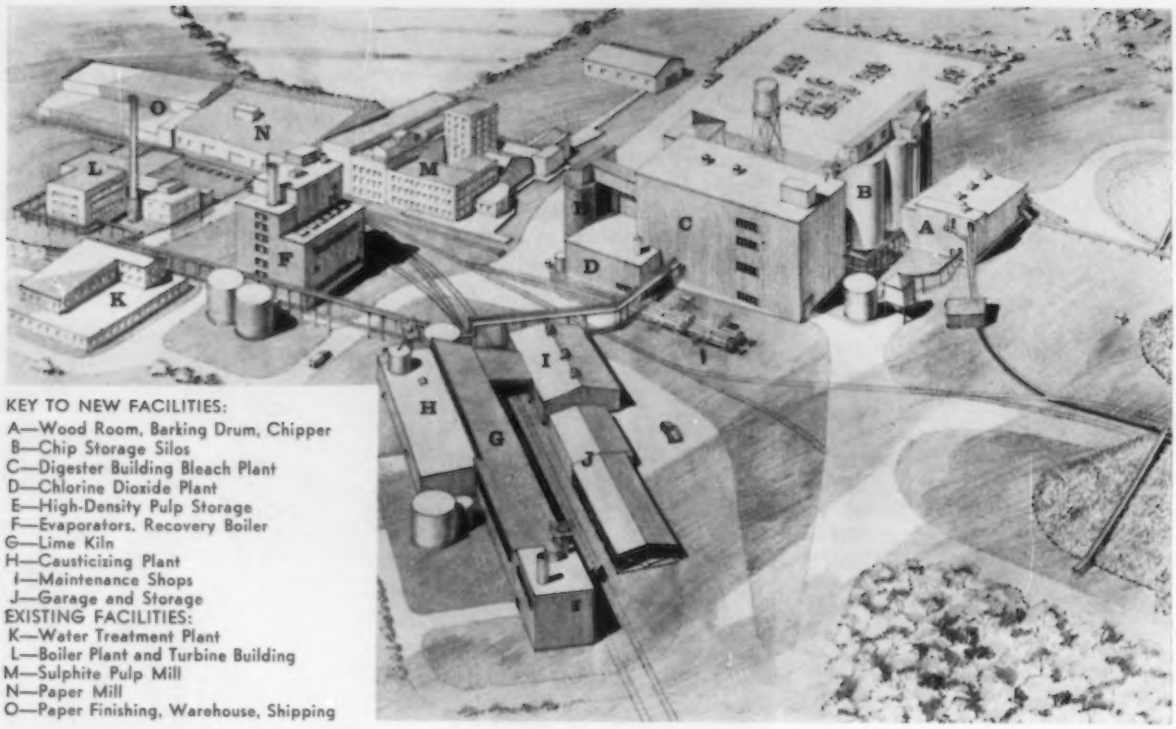
With construction and erection of equipment completed in January, the newly rebuilt machine was started up and is now producing a wide range of high grade printing papers, including blueprint, gumming, index bristol and ledger stock. The machine has been run successfully at designed speeds affording a production rate increase of approximately 100 per cent on most grades with significant improvements in quality.



PRESS SECTION includes suction first press, reversing second press and a smoothing press. New dryer section consists of larger diameter dryers.



SUCTION COUCH is full cantilever type. Dandy roll assembly can be lifted clear for wire change. Rotabelt is located just ahead of couch.



KEY TO NEW FACILITIES:
A—Wood Room, Barking Drum, Chipper
B—Chip Storage Silos
C—Digester Building Bleach Plant
D—Chlorine Dioxide Plant
E—High-Density Pulp Storage
F—Evaporators, Recovery Boiler
G—Lime Kiln
H—Causticizing Plant
I—Maintenance Shops
J—Garage and Storage
EXISTING FACILITIES:
K—Water Treatment Plant
L—Boiler Plant and Turbine Building
M—Sulphite Pulp Mill
N—Paper Mill
O—Paper Finishing, Warehouse, Shipping

Eastern Corporation Enters Bleached Kraft Field . . .

. . . with new 175 ton/day plant in operation at Lincoln, Maine

R. M. Ludwig

Project Engineer
The Rust Engineering Co.
in association with Eastern Corp. Staff

With the start-up of its $11,000,000 bleached kraft pulp mill at Lincoln, Maine, Eastern Corp. has entered the field of high brightness kraft pulp production. This new 175-ton-per-day plant, designed and constructed by The Rust Engineering Co., rounds out Eastern's Purocell-(R)* line of market pulps by making available quality kraft as well as sulphite pulps. Both pulps are also used in its "Atlantic" and "Manifest" lines of fine business papers. In accordance with Eastern's established policy some of this new pulp is reserved for sale.

Designed for compactness and reduced labor requirements, the new mill supplants Eastern's 100-ton-per-day Lincoln sulphite pulping operation, which stopped production at the end of March as the start-up date for the new mill became imminent. The only part of the sulphite mill which has been retained is the pulp drier which is now used in conjunction with the new kraft mill.

Among the interesting features found in the new mill are the following:

1—The use of a wood yard flume for rough wood conveying, a practice not common in northern winter operations.

2—The Kamyr continuous digester which is the first of its kind installed primarily for hardwood pulping.

3—The use of Venturi scrubber and cyclone evaporator for fume recovery and contact evaporation at the recovery boiler is a recent development.

* Registered Trade-Mark

Eastern Corp. Growth

Eastern Corp. has its origin in the lumber industry, which at one time made Bangor, Maine, the largest lumber port in the world. Eastern's original pulp mill was built in 1889 adjacent to its large sawmill in South Brewer, Maine, as a means of converting waste slabs and edgings into a saleable product rather than using it merely as fuel. Through the years this mill has been enlarged and modernized and production increased from 60,000 pounds of pulp daily to 340,000 pounds of highest grade bleached sulphite pulp. Eastern was first in the country to manufacture sulphite pulp for the rayon industry, and one of the pioneers in the use of ammonia base in the sulphite

pulping of both hardwoods and softwoods.

In 1895, Eastern's management decided to enter the papermaking field, and erected a paper machine at South Brewer adjacent to the pulp mill for the manufacture of manila and wrapping papers from unbleached sulphite pulp. In 1901, a second paper machine was installed, followed a year later by a third machine. Gradually, the operations shifted from coarse to fine papers, until finally the concentration was entirely on fine papers made exclusively from wood pulp.

In 1914, the company took over the Katahdin Pulp and Paper Co. in Lincoln, Maine, which forms the basis of what is now Eastern's Lincoln Division. In 1930 the Orono Pulp and Paper Co. was purchased by Eastern, but the mill was later abandoned and portions of its equipment moved to the present Lincoln and Brewer operations. Another corporate addition was made in 1949 when Royal Lace Paper Works, Inc., of Brooklyn, N. Y., was purchased. This division is today the largest producer of lace paper products in the United States.

Today Eastern Corp. owns and controls about 450,000 acres or over 600 square miles of timberland in Northern Maine and Canada.

Eastern has five paper machines, three at South Brewer and two at Lincoln. In addition there is a pulp dryer at each division.

Personnel

Frank Knight, manager of pulp manufacturing, headed the Eastern team which worked with Rust Engineering in the design, construction, and start-up of these new facilities. He was assisted by Donald Griffee, resident manager of the Lincoln Division; Thomas Carlin, kraft mill superintendent; Charles W. Ray, assistant kraft mill superintendent; Neil Clarke, division chemist; Fred Stetson, chief engineer; and other members of Eastern's engineering and operating staff.

The Rust Engineering group was headed by C. D. Haxby, vice president, assisted by B. M. Hutchins, engineering consultant; R. M. Ludwig and T. H. Scanlon, project engineers. Construction and field management were under the supervision of R. W. Newby, construction superintendent, assisted by F. R. Tinkham and Lou Sahr, area superintendents.

Training Program

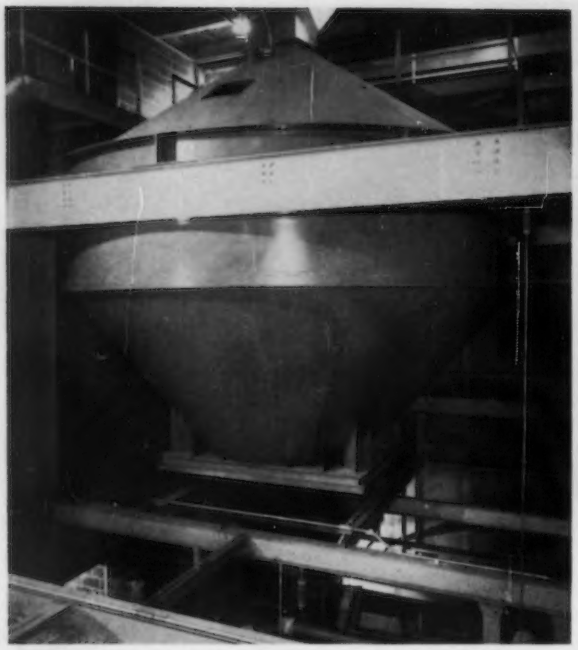
Eastern carried out a very extensive training program[1] to familiarize their operating personnel, who had formerly

[1]Eastern Corp. has agreed to prepare an exclusive article for Paper Trade Journal detailing this training program.

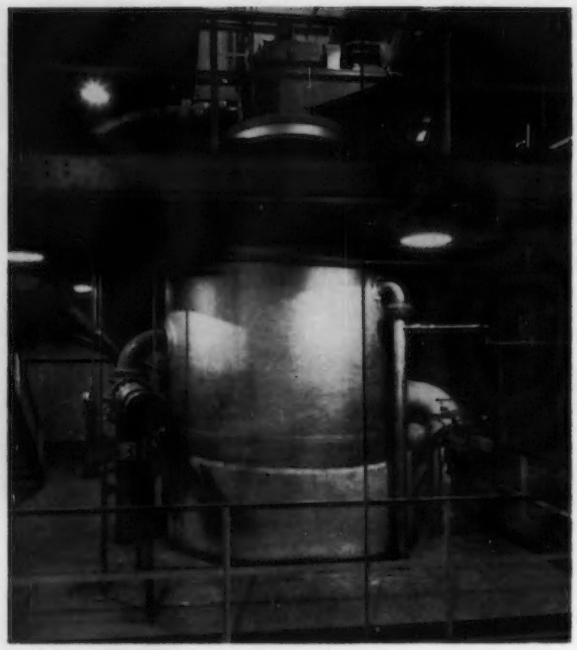
WOOD YARD provides storage for 42,000 cords.

PEELED WOOD CONVEYOR transports wood to the chipper.

BARKING DRUM with discharge end at left.



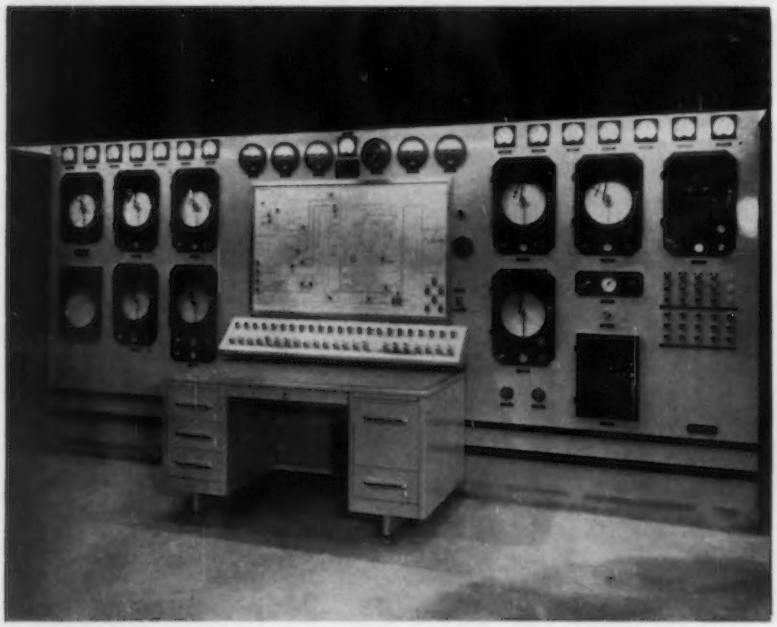
DIGESTER CHIP TANK supplies variable speed rotary star feeder which is primary means of controlling digester production rate.



TOP OF DIGESTER is fitted with internal strainer plates through which chip conveying liquor passes, with a rotating scraper continuously cleaning the plates.

worked in the sulphite mill, with their new duties in the kraft mill. The basis of this training program was a comprehensive operational and training manual covering the individual departments of the mill. A description of the process, flow diagrams, and description of the equipment, together with start-up, operating, shut-down and emergency procedures were drawn up for each department. Professor Andrew Chase and Bernard Deschanes of the University of Maine assisted in the preparation of the manual.

This manual was used for extensive class room training sessions, which were supplemented by visits to other kraft mills and by final field training sessions held immediately prior to start-up. This well-planned and comprehensive training program can be credited to a large degree for the success of the smooth start-up which was experienced.



DIGESTER CONTROL PANEL with schematic flow diagram.

Wood Yard

An entirely new wood yard has been constructed for storage and handling of both rough and peeled wood, all in four-foot lengths. The new plant will consume mixed hardwoods, primarily beach, birch, and maple, though provision has also been made to utilize coniferous species including spruce, fir, hemlock and some pine.

Total storage for 42,000 cords is provided for distribution between rough and peeled softwoods and hardwoods, the quantity of each depending upon season and demand. The entire wood storage area is provided with fire protection by an overlapping monitor nozzle network and hose stations.

Approximately one-half of wood receipts is by rail; the remainder is delivered by trucks of the corporation, woods' contractors, and local farmers. Rail cars containing rough wood are unloaded either into a flume going to the wood room or to stacking chain conveyors leading to "jack-strawed" storage piles. Rough truck wood is handled similarly. Primarily, all peeled wood delivered is received by truck and is unloaded to storage by stacking con-

veyors or else is transported directly to the chipper on a 36-inch reversible belt conveyor for peeled or debarked wood.

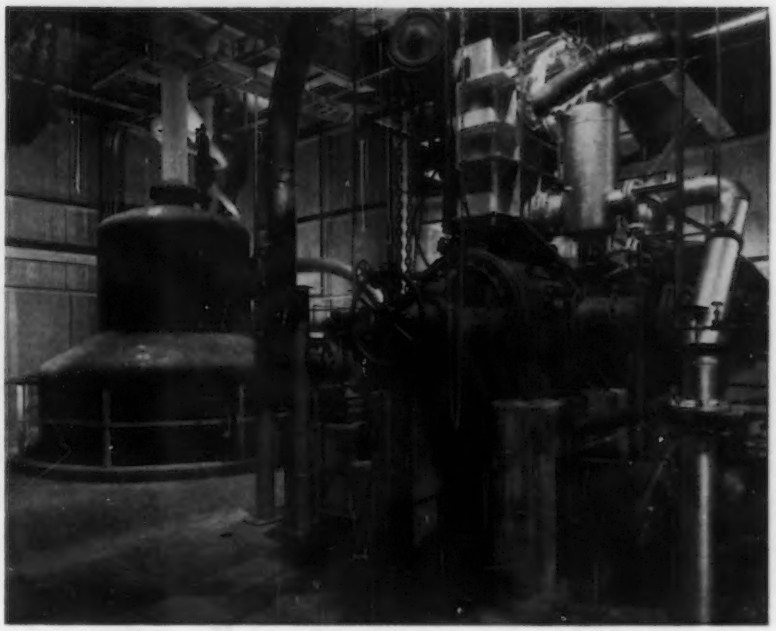
Logs from rough wood storage are picked up by an orange-peel grapple on a crawler crane and are fed into a 1000-foot long ground level flume carrying 14,000 g.p.m. at 5 to 7 f.p.m. From this steel plate flume, the water-borne logs are discharged to an inclined coil link chain jackladder conveyor with links and 16 inch wide flights of manganese steel, a material that develops greater strength through repeated impact. At this discharge point, the flume water passes through strainer plates in the bottom of the conveyor to a Link-Belt inclined traveling screen which collects bark and other large debris and discharges this material onto a pintle drag-chain conveyor for waste disposal. Silt and fine gravel settle in a section of pit after the screen which is cleaned out periodically. A 16 inch Goulds double-suction circulation pump withdraws water from a baffled final section of the pit. Overflow at a rate of 1500 g.p.m. from the caustic extraction stage seal box in the bleach plant is continuously bled to the flume system to eliminate solids build-up in the system and to add heat to prevent freezing during winter operations.

Wood Room

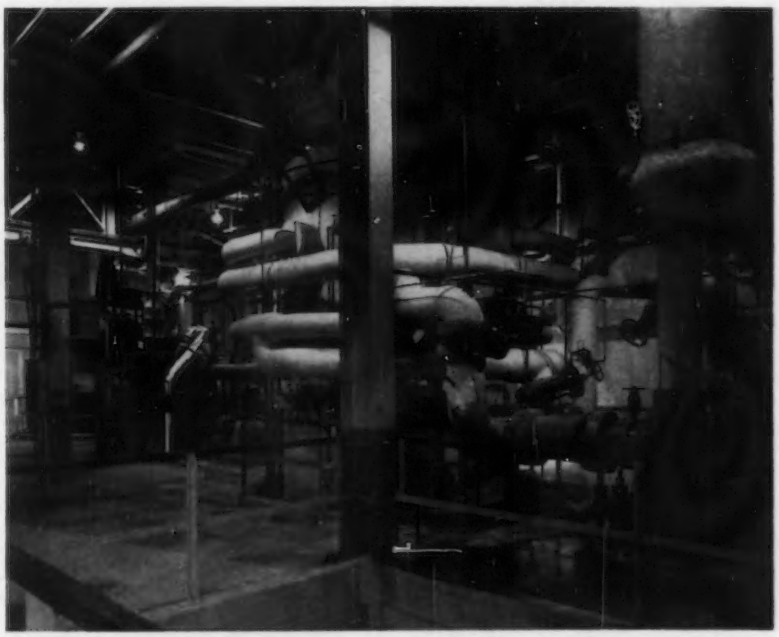
The jackladder feeds a trunnion mounted 12 ft. diameter by 67 ft. 6 in. "Weldrum" barker of extra heavy construction to withstand the battering service of handling frozen hardwood logs. The barking drum is equipped with a shut-off gate at its discharge end to permit stopping the flow of wood for a limited time without shutting down the drum. Driven by a 250 h.p. motor with variable speed, slip-ring control and double reduction gear reducer, the drum has a capacity rating of 35 cords per hour during the optimum barking season and a minimum of one-fourth this rate when barking frozen wood. Two showers wash the wood at the discharge end of the drum. A scraper conveyor dewaters the bark and discharges it on to a belt conveyor running under the drum collecting bark and sawdust. This same belt discharges into dump trucks which carry the waste from the wood room and flume pit to a disposal area.

Wood from the drum barker discharges to a reversible belt conveyor and moves either directly to the chipper or to peeled wood storage yard. The yard conveyor is 36 inches wide by 530 feet long and is reversible to either convey logs from the drum to storage piles during the best barking season, or to supply debarked wood to the chipper during the winter months.

Wood from the drum to the chipper first passes over two spiked "speed-up" rolls which orient the logs as they are transferred to the 60 inch wide sorting belt. Poorly debarked logs are returned to the feed end of the barker by a chain conveyor. Logs over 20 inches in diameter are conveyed to a Sumner Iron Works steam splitter for quartering and are then returned to the sorting conveyor. The sorting belt discharges logs directly to the 96 inch diameter, 10-knife, D. J. Murray chipper, which has a 22 inch spout recommended for 20 inch maximum diameter logs. The chipper is V-belt driven by a 700 h.p. 900 r.p.m. wound rotor motor with five percent permanent resistance in the starter to prevent excessive slowdowns



HIGH PRESSURE FEEDER continuously conveys chips to top of digester with recirculated liquor. Top of blow tank is at left.



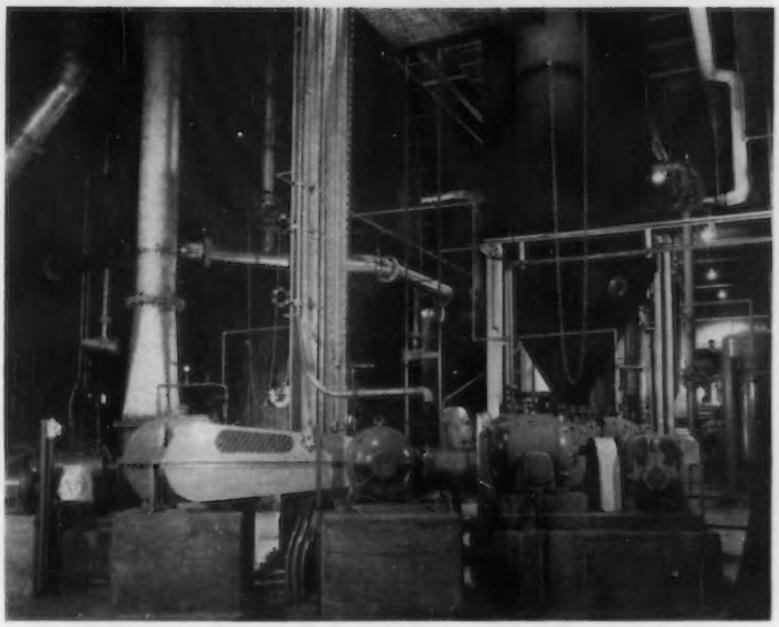
VIEW OF DIGESTER showing a portion of the two indirect heating and circulating systems. These maintain a controlled temperature gradient to insure proper cooking.

ROUGH WOOD PILES
FLUME
CHAIN CONV.
BARK SCREEN
SETTLING PIT
PEELED WOOD PILES
REVERSIBLE BELT CONV.
BARKING DRUM
BARK
TO TRUCKS WASTE
SORTING TABLE
CHIPPER
RECHIPPER
CHIPS
CHIP CYCLONE
CHIP FEEDER
CHIP SCREENS
SAWDUST TO WASTE
ACCEPTED CHIPS
CHIP ELEVATOR
CHIP SILOS
CHIP CONV.
FROM RECOVERY & RECAUSTIC.
WHITE LIQUOR STORAGE
BLACK LIQUOR
CHIP ELEVATOR
CHIP TANK
CHIP METER
LOW PRES. FEEDER
STEAMING VESSEL
HIGH PRES. FEEDER
CHIPS & LIQUOR
TOP SEPARATOR
DIGESTER HEATERS
CONTINUOUS DIGESTER
LIQUOR
BOTTOM STRAINER
BLOW TANK
DEWATTER
KNOTS TO SEWER
BLK. LIQUOR TO RECOVERY & DIGESTER
BROWN STOCK WASHER
HOT FRESH WATER
BELT CONV.
BN. STOCK HIGH DEN. TANK
TO HIGH DENSITY STOR. BLEACHED PULP
1ST. ClO2 WASHER
2ND. ClO2 WASHER
CAUSTIC WASHER
CAUSTIC SOLUTION
CHLORINE WASHER
BAUER CLEANERS
SECONDARY SCREEN
DECKER
CONSIS. REG.
HEAD BOX
PRIMARY SCREENS
ACCEPTS
REJECT TANK
FLAT SCREEN
SEAL BOX
ACCEPTS TANK
REJECTS TO SEWER
GAS
CHLORINE TOWER
CAUSTIC TOWER
2ND. ClO2 TOWER
1ST. ClO2 TOWER
SEAL BOX
MIXER
ClO2 SOLUTION
PRE-RETENTION TUBE
ClO2 MIXER
THICK STOCK PUMP
CHLORINE MIXER
STOCK CHEST
WHITE WATER TANK
CONSIS. REGULATOR

during operation. The chipper disk is machined to a helicoidal "uni-chip" knife arrangement.

Chips are blown from the chipper through a duct and cyclone separator to a scraper conveyor feeding the chip screens. The two Tyler screens, one an existing 6-foot by 14 foot and the other a new 5 foot by 14 foot screen, are equipped with Chain Belt rotary star feeders for uniform chip feeding and full width distribution. Oversize chips from the top screen decks are conveyed to a 40 inch diameter Murray six-knife rechipper which is V-belt driven by a 15 h.p. motor. The rechipper also discharges its chips by "blowing" to the same cyclone as the chipper. Accepted chips fall from the screens onto a belt conveyor feeding a 94 foot high Link-Belt centrifugal discharge bucket elevator for storage in three chip silos. Fine screenings are carried to the refuse conveyor handling waste from the barking drum for common disposal.

The entire wood handling and chipping operation is designed to produce 40 cords per hour of accepted chips. A single shift operation at this rate will supply chips for a three-shift pulping operation.



BLEACH PLANT showing base of chlorine dioxide tower and pre-retention tube. Reaction begins in the tube, continues during 240 minute retention time in the tower.

Chip Storage

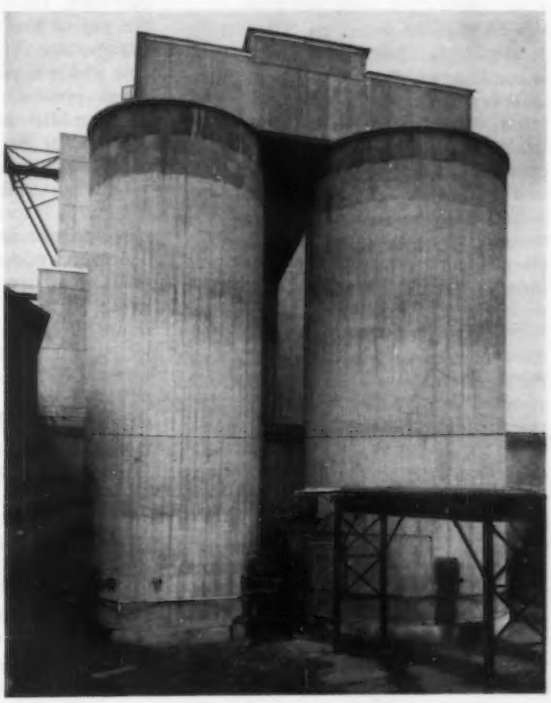
From the bucket elevator, chips discharge to a reversible belt conveyor mounted on wheels and running on tracks, which shuttles above three chip silos, each 40 feet diameter by 80 feet high with steel cone bottoms. These silos were constructed as a monolithic reinforced concrete structure by the sliding form method. Each silo has capacity for 250 cords of chips, which is one day's supply for the digester.

Each bin discharges to a Jeffrey pan conveyor, with adjustable gate to regulate flow of chips. If flow of chips ceases, bin vibrators are automatically actuated to release any arching in the silo cone. The three feeders discharge to a 24 inch wide belt conveyor, which in turn supplies a 100 foot high bucket elevator directly feeding the digester system. The entire bin unloading system is controlled from the digester operating floor, with level control on the digester chip tank shutting down the system in the event of too high a level.

Digester Area

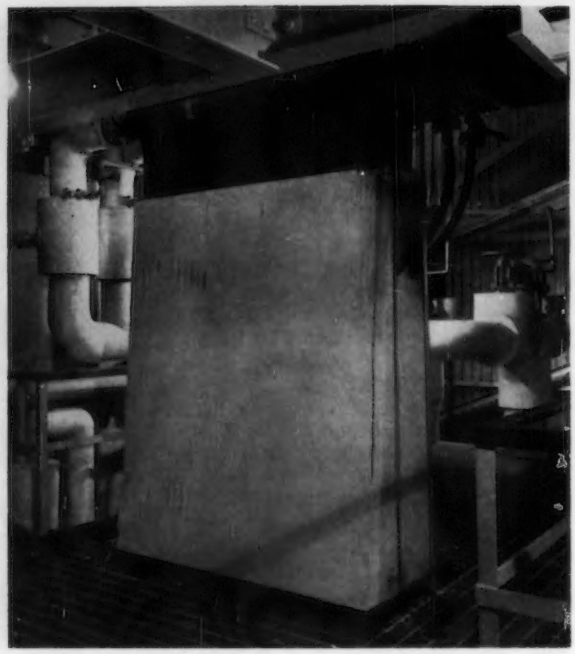
Cooking equipment consists of a Kamyr continuous digester system, the first of its kind in North America designed for hardwood kraft pulping. The digester has a basic rating of 150 tons per day on softwoods and an estimated capacity of up to 200 tons on hardwoods. A cylindrical chip tank with conical top and bottom located at the top of the digester building, supplies chips to a rotary star feeder with which its variable speed drive is the primary means of metering and controlling digester production rate.

A Navco vibrator is provided in the hopper ahead of the chip meter to prevent arching. From the meter, the chips pass through a rotary low-pressure feeder to make the transition from atmospheric pressure to the 15-20 p.s.i. maintained in the steaming and preheating stage. This is accomplished in a 58 inch diameter by 25 foot long horizontal vessel, through which the chips are transported by a 45 inch



BLEACHED HIGH DENSITY STOCK CHESTS are constructed of reinforced concrete with tile lining. The larger is for hardwood pulp storage, the other for softwood.

TOP OF EVAPORATORS. These are sextuple effect evaporators rated at 135,500 pounds per hour of evaporation. Here black liquor is concentrated from 14.5 per cent to 45 per cent solids.



VENTURI SCRUBBER is feature of the recovery system. Together with cyclone evaporator separator, it provides fume recovery and contact evaporation to build up liquor solids content.

diameter helical screw conveyor. At the end of the steaming vessel, the preheated chips drop down a chute to the high pressure feeder, a rotary device through which pressurized liquor from the top of the digester vessel is recirculated to convey chips continuously into the digester, as the chip pressure is increased from 15 to 165 p.s.i.

The digester vessel itself is 10 feet in diameter at the base, 74 feet high and is constructed of mild steel boiler plate, 2 inches thick. At the top, the vessel is fitted with internal strainer plates through which the conveying liquor passes, with a rotating scraper continuously cleaning the plates. White liquor is added at the top of the digester by means of two DeLaval two-stage pumps; one of which is a spare. Two indirect heating and circulation systems, with a third spare heater, maintain uniform temperature zones located about one-half and two-thirds of the way down the digester. In this manner a controlled temperature gradient from 230°F. at the top of the vessel to 340°F. in the lower zone is maintained to insure proper cooking and uniform pulp quality. After a cooking period of normally three and one-half hours, the pulp is discharged from the bottom of the digester through a disk strainer. This strainer extracts liquor for pumping back into the discharge zone of the vessel to facilitate the flow of cooked chips by dilution. The pulp is then passed through a variable orifice blow valve to the blow tank. An agitator within the disk strainer serves to prevent channeling, and also provides a torque signal to control pulp consistency to the blow tank.

On start-up, heat to the steaming vessel is supplied from the mill 40 p.s.i. steam header. Once the system is in operation, however, flashed steam from the top of the blow tank supplies this requirement. In fact an excess is available which is passed from the steaming vessel pressure control valve through a Rosenblad heat exchanger to heat wash water for the final stage brown stock washer.

Condensate from the digester heaters is returned to the boiler feed water make-up provided that the condensate conductivity does not exceed the set point on an automatic conductivity controller. If a heater is leaking, any black liquor in the condensate will be detected and automatically diverted to the sewer.

Brown Stock Washing

The blow tank following the digester is a cone-bottom vessel which holds 12 minutes' run of pulp and is maintained at 12 percent consistency and 15 p.s.i. back pressure. Exit consistency is controlled by means of an output torque signal from an Impco vertical agitator, which in turn operates a black liquor dilution control valve. Stock at 3½ percent consistency is pumped from the tank to a headbox supplying two Impco vibratory deknotters. Knots are collected in a screw conveyor and transported to disposal. Accepted stock is further diluted to one percent consistency and flows by gravity to the inlet box of the first stage washer.

The principal washing equipment consists of three Impco 8′ diameter by 16′ vacuum washers arranged in three stages for countercurrent washing with intermediate repulpers between the stages and a shredder conveyor at the discharge end of the third stage cylinder, feeding into the brown stock high density storage tank.

The filtrate tanks are horizontal cylindrical vessels, 22′ diameter by 36′, 32′ and 28′ long, respectively for the first, second and third stage filtrate. Fabricated and erected by Chicago Bridge and Iron Co., these vessels have, at the horizontal center lines, interface areas of 200, 175 and 150 per cent of their respective washer areas to minimize foam generation thereby diminishing liquor losses and operating troubles. A foam tank of 15 feet diameter by 40 feet high with an Impco foambreaker located at the top is equalized with the first stage filtrate tank. Foam piping from the top of each filtrate tank leads to the foam tower. Black liquor circulation and transfer pumps were supplied by Goulds Pumps, Inc.

Residual soda in the pulp from the washers is sensed by measuring the conductivity of the filtrate from the third-stage washer. The amount of fresh hot

water supplied to this washer is automatically controlled to maintain the proper washing efficiency.

Screen Room

From the high density storage tank, a 20 foot diameter by 40 foot high steel vessel containing 40 tons of brown stock at 12 per cent consistency and equipped with Impco mining nozzles, dilution system and agitation equipment, the stock is pumped at 3 per cent consistency through a DeZurik pipe line type regulator to a headbox above the screens. White water from the decker filtrate tank is blended with the pulp at this point, and the mixture at 1.25 per cent consistency flows by gravity to the screens. Two Cowan Mark "A" centrifugal screens, one with .050/045 inch perforated plates for hardwood pulp, and the other with .075 inch perforations for softwood, discharge accepted fibers directly by gravity to the inlet box of an Impco 8 foot diameter by 16 foot vacuum decker. Thickened stock from the decker repulper is passed through a DeZurik pan-type regulator at 3.5 per cent consistency to a tile mid-feather-type stock chest located below. The chest is fitted with an Impco propeller agitator and holds 4.5 tons of pulp.

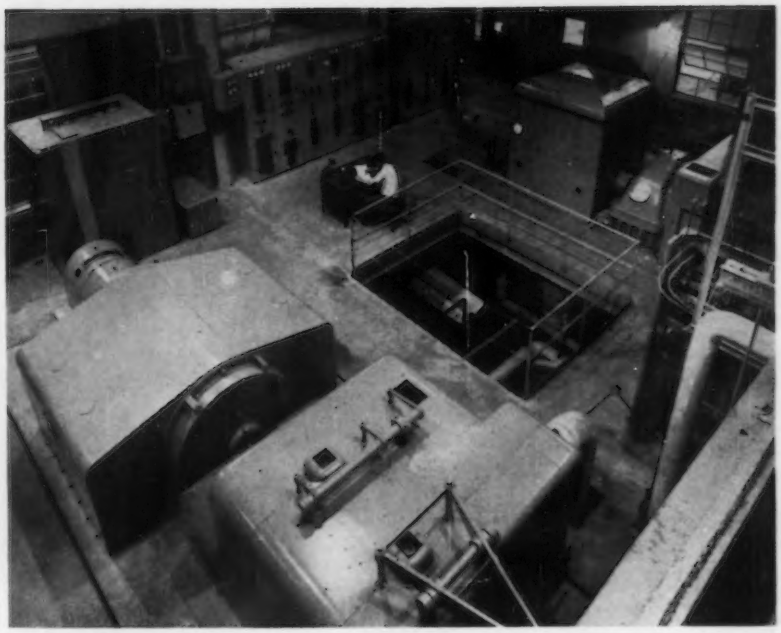
Rejects from the primary screens are pumped to the inlet of a Cowan "Junior" secondary screen. Accepted stock from the secondary screen is passed through a bank of Bauer cleaners before entering the decker inlet box. Secondary screen rejects are further processed on a 16-plate flat tailings screen, accepts from which are returned to the feed of the secondary screen and rejects are sewered.

Filtrate from the decker is captured in a tile white water chest and pumped to re-use for dilution at the high density chest, Cowan screens and decker, as well as reject showers for the flat screen.

Bleach Plant

The bleach plant is a four-stage system featuring two stages of chlorine dioxide treatment capable of producing pulp of 90 brightness at the pulp drying machine. The tower equipment and washers were manufactured by Improved Machinery, Inc., with tower tile linings and washer vats by Chemical Linings, Inc.

Pulp at 3.5 per cent consistency is pumped from the screened stock chest through an Impco chlorine mixer to the 16 foot diameter by 49 foot high tile-lined upflow chlorination tower. Retention time here is 60 minutes. Chlorinated pulp is overflowed at the tower top and pumped to an 8 foot diameter by 16 foot vacuum washer, with single press roll and shredder conveyor, discharging at 14 per cent consistency to the next stage of bleaching. All of this equipment, including mixer, circulators, pumps, piping and vacuum washer, is rubber-lined.



GENERATING TURBINE ROOM. New 5000 kva single extraction, exhausting turbine is in foreground; older unit is in background.

Discharging from the chlorination washer, the thickened pulp is fed a metered quantity of 10 per cent caustic soda solution and then passed through a double shaft steam mixer, where direct addition of 40 p.s.i. steam, heats the material to 160°F. The pulp drops into the 13 foot diameter by 43 foot high tile-lined caustic extraction tower, where it is retained for 120 minutes. The thick stock is diluted at the base of the tower and pumped to the 8 by 16 foot cast iron and steel caustic extraction vacuum washer. This washer, equipped with two press rolls, delivers pulp at 15 per cent consistency to the succeeding stage of chlorine dioxide bleaching.

After passing the double shaft mixer and being heated to 170°F., the pulp drops through a stainless steel chute to the feeder ahead of an Impco thick stock pump. This pump forces the mass through a Hastelloy "C" chlorine dioxide mixer and upward through the 6 foot diameter by 60 foot long "pre-retention" tube. The balance of the reaction takes place during the 240 minutes in the 18 foot diameter by 46 foot high down flow, high density bleaching tower. The bleached pulp, diluted at the tower base, is pumped to the vat of the first chlorine dioxide washer, another 8 foot diameter by 16 foot unit, constructed of 317 stainless steel.

The sequence and equipment in the second chlorine dioxide stage is identical with that of the first stage. After going through the last washer, the fully-bleached pulp drops to a belt conveyor and is carried to one of two bleached high density storage tanks. The hardwood tank is 28 feet diameter by 65 feet high with a capacity of 160 A.D. tons at 14.5 per cent consistency, whereas the softwood tank is 22 feet diameter by 65 feet high and holds up to 80 tons. These tanks were constructed of reinforced concrete by the sliding form method, and each is tile-lined. A separate pump and piping system conveys pulp from each storage chest at 4.5 per cent consistency to the existing paper mill slush stock handling system. Here the pulp from the new kraft mill is processed either into dry baled market pulp, wet laps for inter-mill use, or transferred as slush directly to the Lincoln Division paper mill stock preparation department.

The chlorination and chlorine dioxide washers are each equipped with an inlet box hood and DeBothezat bifurcated exhaust fan, designed to sweep fume-laden air back across the face of the washer cylinder while still permitting access to the showers and drum, which is not possible with a totally enclosed hood.

The bleach plant water balance is predicated on 23,000 gallons of fresh water usage per ton of pulp; approximately 300 g.p.m. of which is applied to each washer for displacement showers, and the remainder is added in the

AERIAL VIEW of Lincoln, Maine plant. New bleached kraft mill is in the center background.

tile seal boxes from each chlorine dioxide washer. Overflow from the first chlorine dioxide seal box flows to the caustic extraction seal box, and overflow from the second chlorine dioxide seal box to the chlorination seal tank, thereby permitting further reuse of the cleanest water. Excess caustic extraction filtrate goes to the wood yard flume as described previously, while chlorination filtrate overflow is sewered. Another practice employed is that of adding 10 per cent caustic solution to the filtrate from the first and second chlorine dioxide washers to raise the pH, in order to destroy the oxidizing power of any residual chlorine dioxide and to minimize corrosion.

Bleach Liquor Department

Liquid chlorine from rail cars is vaporized in a Hooker circulating hot water chlorine evaporator and is piped directly to the chlorine mixer ahead of the chlorination tower.

Caustic soda is unloaded from tank cars or trucks as a 50 per cent solution, or as a 73 per cent solution which is then diluted to 50 per cent and cooled in a Brown fintube exchanger. Two 14,000-gallon tanks store the 50 per cent solution, which is further diluted to 10 per cent solution in a 17,-000-gallon tank before being metered to process.

Chlorine dioxide is generated by a three-ton per day Solvay Process system, the raw materials used being sodium chlorate, sulphuric acid and methanol. An existing Graham package steam jet refrigeration unit chills water to 40°F. for absorption of the chlorine dioxide gas, and the solution is stored in a 20,000-gallon brick-lined receiver tank. Spent acid solution, the waste product from the reaction, is pumped to weak black liquor storage to furnish a portion of the soda and sulphate make-up to the recovery cycle.

Black Liquor Evaporation

Weak black liquor from brown stock washing is pumped at 14.5 per cent solids to a 158,000-gallon storage tank, from which the liquor is fed to the six body, sextuple effect Goslin-Birmingham evaporator unit, rated at 135,-500 pounds per hour of evaporation, with steam economy of 5.17 pounds of evaporation per pound of steam input. Strong black liquor at 45 per cent solids concentration is pumped to another 158,000-gallon tank ahead of the recovery boiler.

Stainless steel tubes and vapor head protection are included in the first effect. The second effect is equipped with stainless steel vapor head protection while stainless liquor piping is provided from the third effect through first effect. Liquor transfer and circulating pumps are manufactured by Worthington Corp. and are constructed of Worthite stainless steel alloy.

The concentration of liquor leaving the first effect is automatically controlled by the measurement of boiling point rise of the strong liquor against a boiling water reference; this signal regulates the pressure of steam to the first effect, thus modulating the thermal input, thereby varying the evaporation rate to suit operating conditions. Dirty condensate is pumped to the recausticizing plant for hot wash water, while clean steam condensate is returned to the boiler feed make-up system. A conductivity controller protects the make-up system against liquor contamination.

Recovery Furnace

The recovery boiler and furnace, de-

Derek Currie

signed and fabricated by Babcock & Wilcox Co., is rated at 69,100 pounds per hour of steam at 600 p.s.i.g., 650°FTT, and consumes 20,400 pounds per hour of salt-cake-free black liquor solids at this steaming rate. The liquor system features a Venturi scrubber and cyclone evaporator separator for fume recovery and contact evaporation to build up liquor solids content to the concentration required for firing.

Liquor is transferred from strong black liquor storage to the cyclone evaporator, from which it is circulated at 50 p.s.i. through Sarco strainers to the Venturi headers and wall washing showers above the cyclone tank. Liquor is introduced at the Venturi throat in a direction opposing the flow of flue gas at 515°F. from the boiler. The liquor and gas mixture is swept into the cyclone, which serves to disengage the liquor droplets from the gases, so that gas saturated at 200°F. and containing little solid or gaseous combustion products is discharged. The induced draft fan, a two-stage unit manufactured by Clarage Fan Manufacturing Co., is rated at 65,900 c.f.m. at 44 inch water gage pressure, and is driven at 1200 r.p.m. maximum speed by a 750 h.p. General Electric steam turbine. Combustion air is supplied by a Clarage forced draft fan, and preheated by boiler flue gases in a shell and tube air heater. Because of the high concentration of entrained solids in the flue gas, the heater tubes become fouled very rapidly. To overcome this, the heater is provided with a system that periodically rains steel shot through the tubes to remove ash. This ash is separated from the shot with primary air, and the shot is conveyed pneumatically to a box above the heater, in readiness to repeat the cycle.

Solid material and liquor refused by the Sarco motorized strainers in the Venturi circulation cycle is piped to the salt cake mix tank, where salt cake is added and the mixture agitated and heated to 210°F. by direct steaming. This liquor, at 60-64 per cent solids, is pumped through a secondary line heater and then into the furnace spray oscillator, where the liquor is sprayed on the furnace walls.

There is a 15-foot diameter smelt dissolving tank, equipped with Cleveland mixer. Density of the solution is controlled by the addition of weak wash liquor from the recausticizing system, using a differential bubble tube as the sensing element. This green liquor of dissolved smelt is then pumped to the green liquor clarifier in the recausticizing area.

A pneumatic vacuum conveying system by Dracco Corp. unloads salt cake from either box cars or hopper bottom cars and transfers it to a 15-foot diameter by 42 feet high concrete stave silo. This system also runs from the silo to a receiver tank which feeds the salt cake mix tank. All conveying air is filtered to recover dust before it is discharged to the atmosphere.

Recausticizing and Lime Recovery

The recausticizing system is a conventional Dorr-Oliver slaking, causticizing and clarification arrangement. Green liquor from recovery is first clarified and flows by gravity to an 80,000-gallon storage tank. Pumped from storage, the green liquor is mixed with reburned lime in a primary slaker and then pumped to a secondary slaker which is equipped with a dregs classifier rake. Here the slaking is completed and fresh make-up lime added. Flow is continued by gravity through a series of three causticizing tanks, each equipped with a paddle agitator. The slurry is then pumped to a unit tray white liquor clarifier. Clear white liquor is pumped to storage near the digester, and mud slurry is transferred to a dual tray lime mud washer for counter-current washing to recover residual soda. Clarified mud is pumped to lime mud storage ahead of the kiln, and weak wash flows

Harold Holden

to storage, from which it is pumped to recovery for smelt dissolving. Green liquor dregs are further washed before being sewered. The lime mud, at 35 per cent solids, is further washed and dewatered to 60 per cent solids in a Bird Machine Co. centrifugal filter, and then is introduced into the kiln by a screw feeder. The kiln, an 8-foot diameter by 250-foot long unit, was manufactured by Allis-Chalmers Manufacturing Co. It has the capacity for a future 100 per cent plant expansion. The kiln is an oil-fired unit with single Peabody burner, an oil pump and a heater set. Hot lime is conveyed by pan conveyor and helical screw to the primary slaker, or when necessary, may be bypassed to a bucket elevator normally feeding the fresh lime bin. Entrained lime dust is removed from the kiln flue gas by a 7-foot 6-inch diameter by 18-foot high Peabody gas scrubber and the slurry of recovered dust is returned to the lime mud washer. Fresh lime is unloaded into a track hopper from box cars, hopper cars, or trucks and moved by belt conveyor to the bucket elevator ahead of the lime storage bin.

Turbine-Generator Addition

A new 5,000 kva., 4160 volt single extraction-exhausting turbine with gen-

EASTERN PERSONNEL (left to right) Neil Clarke, chemical engineer; Charles Ray, assistant pulp mill supt.; Don Griffee, resident manager of mill; Tom Carlin, pulp mill supt.; Frank A. Knight, manager, pulp manufacturing.

erator and exciter was installed beside an existing unit in the plant power house. With these two units, the Lincoln plant of Eastern Corp. now generates all of its power requirements under normal conditions.

Building Construction

Because of the winter weather conditions in the State of Maine, this plant, unlike kraft mills in the South, is entirely enclosed in buildings. Departments, such as drum barker, evaporators, recovery unit, recausticizing plant, and lime kiln, are completely housed.

All of the new buildings in the kraft mill are on spread footings and are structural steel framed. The recovery and recausticizing buildings have corrugated asbestos-cement siding only, but the wood room and pulp building are further protected with a layer of 1½-inch insulating fiber board protected with flat asbestos-cement board on each side. Roofs are of precast concrete channel slabs covered with 1½-inch fiber insulation and four-ply, built-up roofing.

A new 100,000-gallon elevated fire tank provides emergency water supply for fire protection.

Water Supply

No modifications have been made to the present plant water supply systems. Eastern's water rights to several nearby ponds are ample to supply the new plant and the water is sufficiently pure to require very little treatment. All water to the new mill is filtered through sand filters and in addition the water supplied to the paper mill and bleach plant receives further coagulation and settling to render it free of colored material.

Electrical Distribution

The primary distribution voltage for the Lincoln plant has been changed from 550 volts to 4160 volts and new primary switchgear protection installed. An existing 3125 kva. generator has been rewound for 4160-volt service and new controls provided. The 5 kv. distribution cable is butyl rubber insulated and protected with interlocked aluminum armor covered with a layer of polyvinyl chloride. A unit load center is located in each building for 4160 volts to 550 volts step-down, rated 750 kva. each in the wood room, recovery building and recausticizing building, and 4,000 kva. in the pulp building. All motors, with the exception of the chipper, are 550-volt units, with plant lighting system at 110/220 volts. Another interesting feature is the use of aluminum cable tray in place of conduit running throughout the plant.

Steam Supply

High pressure steam is generated at 600 psi, 650°FTT by the new recovery boiler, as well as by an existing 70,000-pound per hour oil-fired power boiler. 600 p.s.i. steam supplied to the two turbine generators is extracted at 175 p.s.i.g. and 40 p.s.i.g., the energy levels at which steam is distributed throughout the plant. In addition, there are several existing 175 p.s.i.g. output pressure, oil-fired boilers that are available for stand-by or for emergency service.

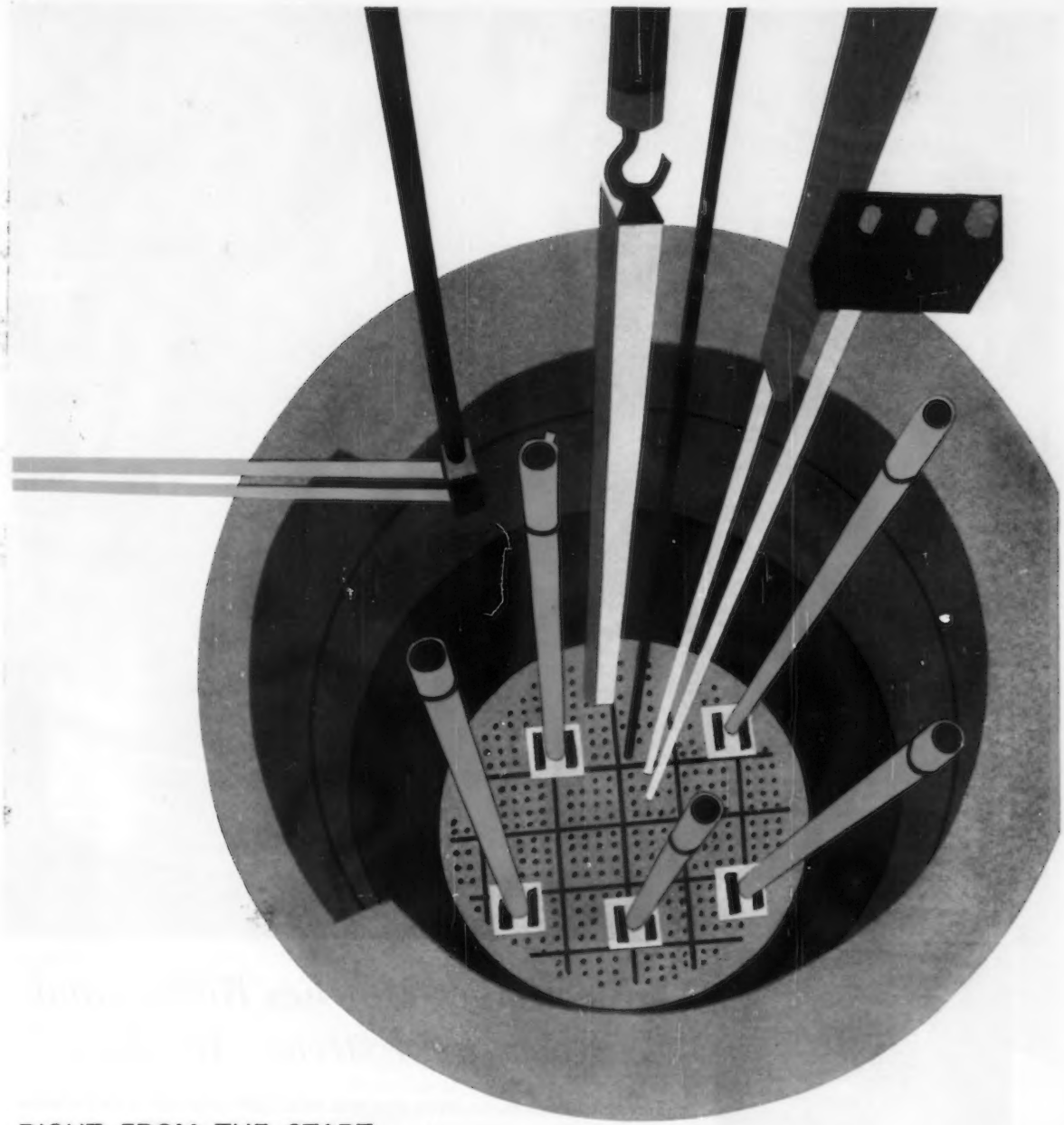
Engineering the Mill

The Rust Engineering Co. engineered and constructed the project, starting in May 1956 with the engineering, while construction began in September 1956. Some 20 months after groundbreaking, the new mill was in operation. Rust specified and procured all equipment and assisted in start-up.

The entire electrical contracting work was installed by Allegheny Industrial Electrical Co., a subsidiary of Rust Engineering. Another Rust subsidiary, Industrial Insulation, Inc., handled the application of all insulation material.

List of Major Suppliers

Agitation Equipment	Improved Machinery
Air Compressors	Ingersoll-Rand
Barking Drum	Canadian Ingersoll-Rand
Brown Stock Washing System and Vibratory Knotters	Improved Machinery
Bleach Plant Washers and Tower Equipment	Improved Machinery
Caustic Plant	Dorr Oliver, Inc.
Chipper and Rechipper	D. J. Murray
Chip Feeders	Jeffrey Manufacturing
Conveyor Components	Link-Belt
Chip Feeders	Chain Belt
Bucket Elevators—chips	Link-Belt
Traveling Water Bark Screen	Link-Belt
Conveyor Belts	B. F. Goodrich
Elevator Belts	U. S. Rubber
Chip Screen	W. S. Tyler
Pumps—stock, water, and weak black liquor	Goulds Pumps
Gear Reducers	Falk Corp.
Pumps—Strong Liquor	Worthington Corp.
Digester Equipment	Kamyr, Inc.
Digester Vessel	Chicago Bridge & Iron
Digester Pumps	Bingham Pump Co. and DeLaval
Tanks—Field Erected	Chicago Bridge & Iron
Tanks—Shop Fabricated	Process Equipment Co.
Digester Heaters	Electric Steel Foundry
Digester Instrumentation	Taylor Instrument
Centrifugal Filter	Bird Machine Co.
Screens, Centrifugal Pulp	Montague Machine Co.
Vacuum Decker	Improved Machinery
Electrical Equipment	Westinghouse Electric
Turbine-generator	Westinghouse Electric
Chlorine Evaporator	Hooker Electrochemical
Lime Kiln	Allis-Chalmers
Recovery Boiler	Babcock & Wilcox
Evaporators	Goslin-Birmingham
Turbine—I. D. Fan	General Electric
Structural Steel and Reinforcing Steel	Bancroft & Martin Rolling Mills
Conveyor and Misc. Steel	The Portland Co.
Oil Heating & Pumping Equip.	Peabody Engineering
Instrumentation—general	Minneapolis-Honeywell
Instrumentation—recovery boiler	Bailey Meter
Control Valves	Mason-Neilan
Siding and Roofing	Bangor Roofing
Tile Tanks and Linings	Chemical Linings, Inc.
Air Systems	Industrial Air Co.
High Density Storage Equip.	Improved Machinery
Consistency Regulators	DeZurik Corp.
Conveyors—Lime Handling	Chain Belt



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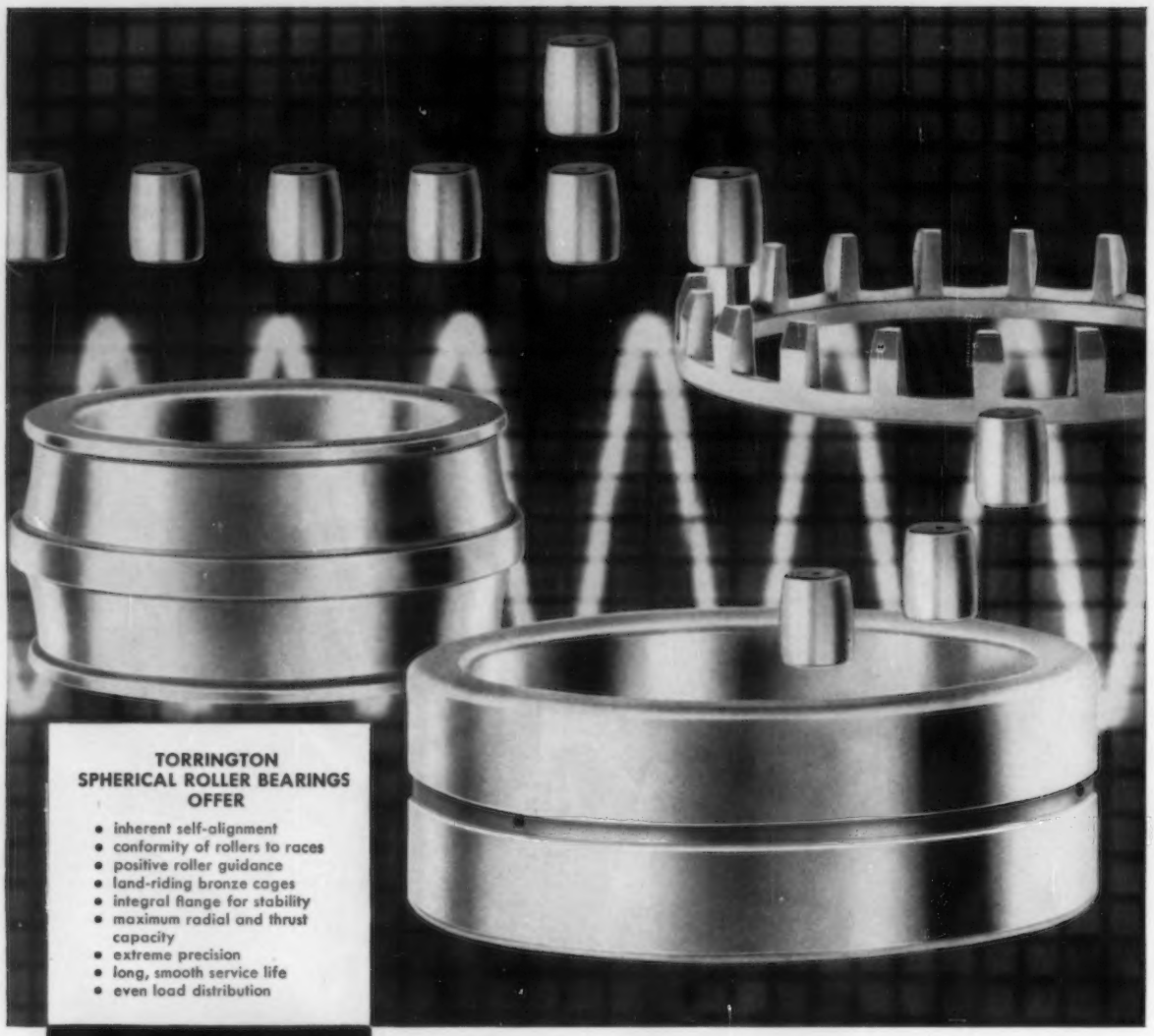

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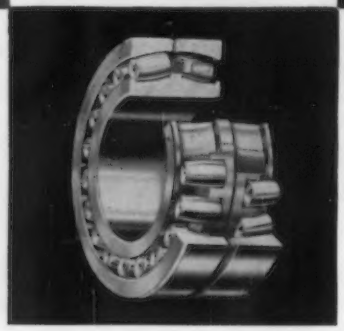

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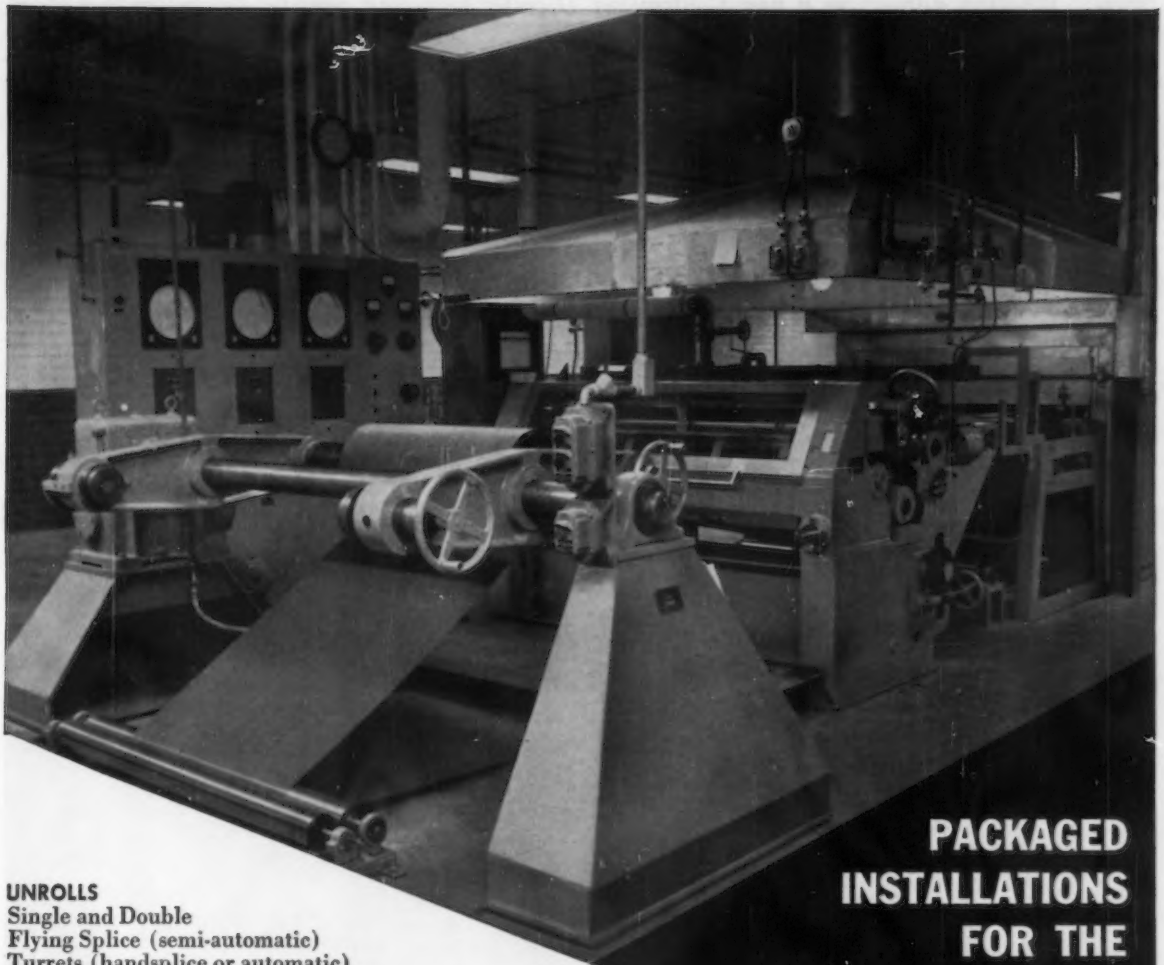

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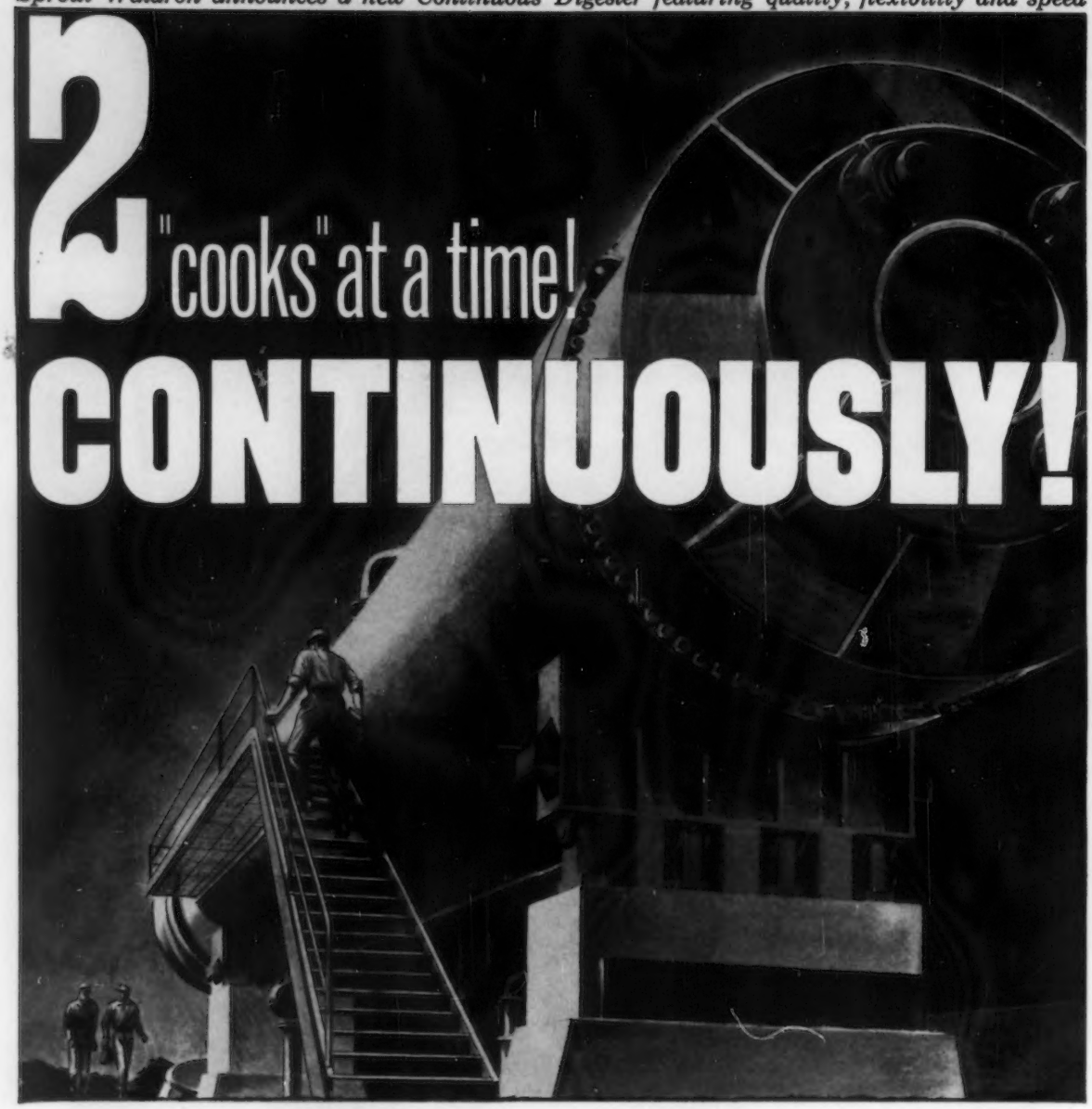

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NEW LITERATURE

ALLEGHENY STEELBAND STRAPPING. (Catalog Sheet C-2) Contains illustrated sales copy on additional sizes and styles and with new accessories. **Allegheny Steel Band Co.,** Box 716, Pittsburgh 30, Pa.

CROYLOY 15-15N. (Bulletin TR-555) Presents a technical paper which outlines the many characteristics and describes the involved testing program of "Croloy 15-15N—An Austenitic Heat Resistant Alloy for Severe Tubular Application at Elevated Temperatures." **Tubular Products Div., Babcock & Wilcox Co.,** Beaver Falls, Pa.

COMBINATION POWER PACKAGE. (Bulletin AR-101/58) Explains performance of both charger and battery, curves and diagram illustrate discharge and charging characteristics of this combination from time the engine demands starting power until the battery reaches full charge again. **C & D Batteries, Inc.,** Washington & Cherry Sts., Conshohocken, Pa.

ELECTRIC HEATING ELEMENTS. (Data Sheet) Contains complete details and specifications on flat, sinuated wire electric heating elements. **Syntron Co.,** 587 Lexington Ave., Homer City, Pa.

FOAMGLAS—THE CELLULAR GLASS INSULATION FOR CURTAIN WALL CONSTRUCTION. (12p Booklet. Outlines the physical properties of Foamglas and recommended specifications. Also features ten outstanding curtain wall buildings. **Pittsburgh Corning Corp.,** One Gateway Center, Pittsburgh 22, Pa.

GRAPHIC ARTS PROGRESS 1958. (1958 Edition) This is a continuation of the publication of outstanding articles related to the printing trade. The material comprises the current collection of articles and abstracts and was selected by a panel of prominent judges drawn from the printing industry. **Fraser Paper, Ltd.,** 420 Lexington Ave., New York, N. Y.

HOW TO STRIP PAINT. (Booklet F7893) Describes four methods commonly used by leading industrial plants to remove paint. Also discusses treatment of metals before repainting, and prevention of rust on stripped surfaces in storage. **Oakite Products, Inc.,** 148A Rector St., New York 6, N. Y.

HOW TO MAINTAIN CONSTANT MOTOR SPEED. (Bulletin 558-1) Provides detailed description of Fincor a-c and d-c motor controls which make use of static magnetic amplification to maintain the desired motor speed regardless of load variations. **Fidelity Instrument Corp.** 1000 E. Boundary Ave., York, Pa.

LOW COST METERING. (Bulletin 100-R1) Provides photographs, line drawings, cutaway views and technical data tables to supplement the explanatory text on the Propelloflo for liquids and the Shuntflo for air, steam or gases. **B-I-F Industries, Inc.,** 345 Harris Ave., Providence 1, R. I.

LITTLE GIANT LIFT TRUCK ATTACHMENTS. (Catalog) Illustrates 26 ways for owners to get more use from their lift trucks. **Little Giant Products, Inc.,** 1596 N. E. Adams St., Peoria 3, Ill.

LINK-BELT STRAIGHTLINE VIBRATING FEEDER. (Form 2670—4-58) Includes illustrated sales copy, dimensions and specifications for Type DF heavy duty and Type CF extra heavy duty feeders. **Link-Belt Co.,** Prudential Plaza, Chicago 1, Ill.

NOPCO 1325-P LIQUID DEFORMER. (Data Sheet) Lists physical and chemical properties as well as performance characteristics of this defoamer which is designed primarily for tissue furnishes and color coatings. **Nopco Chemical Co.,** Harrison, N. J.

PURGE METER—MODEL 10A3135. (Specification Sheet) Features snap-in tube construction, removable end fittings, and a corrosion-resistant fiber glass body. **Fischer & Porter Co.,** 783 Jacksonville Rd., Hatboro, Pa.

A Paper-Proved Product of CIBA

Delivers the best in time-and-money saving FELT-CLEANING RESULTS.

NEOVADINE AL . . . removes filler, dirt, clay and pitch at lower cost-per-washup.

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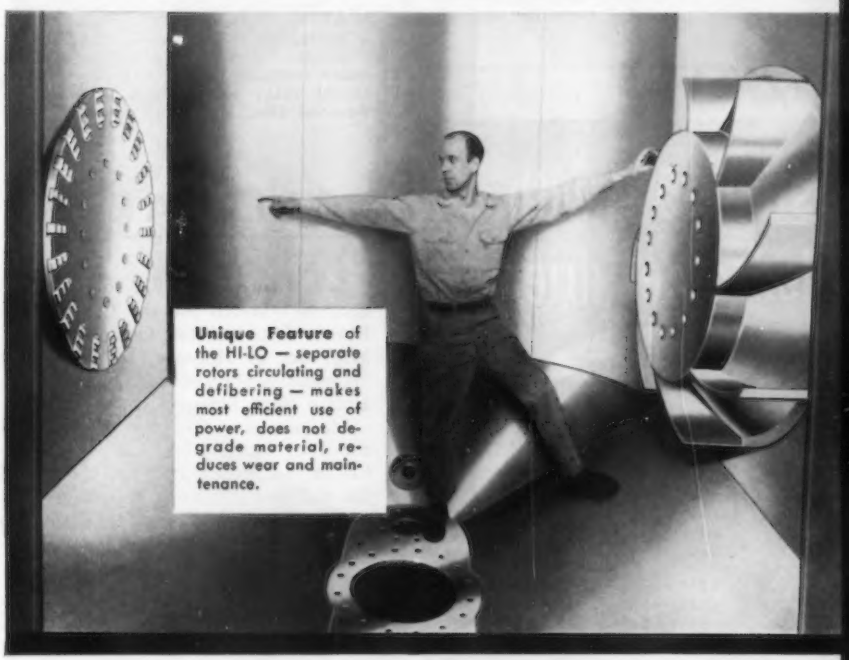
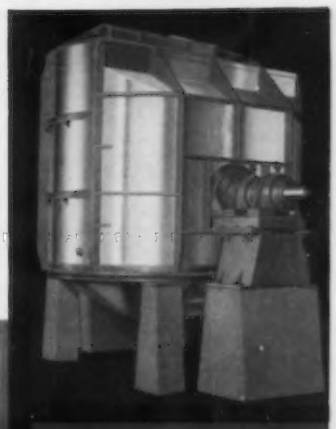
HI-LO PULPER



Unique Feature of the HI-LO — separate rotors circulating and defibering — makes most efficient use of power, does not degrade material, reduces wear and maintenance.



Improved tank design adjacent to the low speed rotor assures even flow of stock past the high speed defibering rotor, improves the pull-down of light broke, and greatly accelerates the initial breaking of bales.

New notched blade design for the high speed rotor accelerates complete defibering of extremely resistant wet strength. Blades of amazingly hard and tough corrosion resistant alloy will retain a square edge five to ten times as long as the best hardened stainless. Replacement is simple and inexpensive for old or new units.

For faster pulping and complete defibering of even the most difficult materials

Developed to achieve the ultimate in pulping and defibering, the HI-LO Pulper has already proved itself in dozens of mills across the country.

By introducing the new design principle — two separate rotors — the HI-LO eliminates the compromise necessary in single-rotor machines between maximum circulation and maximum speed of defibering, without excessive use of power.

The result is maximum performance and efficiency, with minimum HP HRS/Ton and minimum maintenance. Ask your Jones representative, or write for Bulletin EDJ-1063-A.

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Pittsfield, Massachusetts

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PEROXIDE BLEACHING OF MECHANICAL PULPS. (Brochure) Contains the latest information on bleaching groundwood with peroxide. Also includes information on a commercially-operating process for bleaching chip mechanical pulp made from hardwood chips. **E. I. du Pont de Nemours & Co. Inc.**, Wilmington 98, Del.

STAINLESS MACHINE-CUT RINGS AND DISCS. (Bulletin 50-1) Gives up-to-date information on circles, rings, and irregular shapes supplied flame-cut from steel plate of any thickness. **Joseph T. Ryerson & Son, Inc.**, Box 8000-A, Chicago 80, Ill.

STATIC POWER ADJUSTABLE SPEED DRIVES. (Booklets) Describe two types of packaged drives making possible savings of up to 50 per cent or more in floor space and up to 75 per cent in weight. Available in a full range of sizes from one h.p. to 200 h.p. and in two forms, one utilizing magnetic amplifiers for power conversion and the other industrial electronic devices. **Cutler-Hammer, Inc.**, Milwaukee, Wis. 315 N. 12th St.

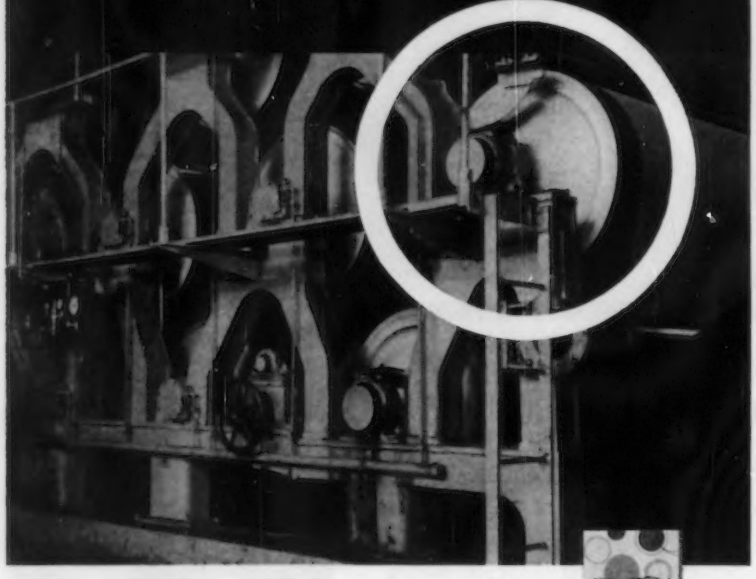
STANDARD THROATS AND CAPACITIES. (Technical Bulletin 100-P6) Includes simplified formulas and all fluids for Dall flow tubes, Venturi tubes and nozzles. **B-I-F Industries, Inc.**, 345 Harris Ave., Providence.

TREMCO TREMSEAL. (File No. 3-B-1; 25-G) Illustrates and tells how Tremseal can save concrete and wood floors. **Tremco Mfg. Co.**, Cleveland, Ohio.

WOOD'S SURE-FLEX FLEXIBLE COUPLINGS. (Bulletin 10100A Revised) Covers new additions to their line of Sure-Flex couplings, which now includes ten sizes. **T. B. Wood's Sons Co.**, Chambersburg, Pa.

WATTS PNEUMATIC PRODUCTS. (Catalog 616) Features air line filters, regulators and lubrications. Also provides complete engineering and operational data. **Watts Regulator Co., Industrial Div.**, Lawrence, Mass.

Production boosted 15% with Lukenweld welded steel driers



The tough, all-welded construction of Lukenweld drier rolls *safely* permits higher steam pressures and temperatures for drying roofing felt at Johns-Manville's Waukegan plant. Results prompted them to order eighteen more for two other plants.

The reduced thickness of the Lukenweld roll's homogeneous steel plate shell assures better heat transfer. More uniform drying over the entire surface can improve product quality. Because Lukenweld rolls can be built to safely withstand pressures well over 200 psi and in a size range that's governed only by shipping limitations, you get faster output, and required machine space can be reduced.

FACTS YOU CAN USE. New illustrated booklet, **WELDED STEEL DRIER ROLLS**, will give you helpful details. Write Lukenweld, Room 176, Coatesville, Pennsylvania.

LUKENWELD A Division of LUKENS STEEL COMPANY

LUKENS

OBITUARIES

Seth Leroy Bush, 73, former manager of research for the Crocker-McElwain Co. and the Chemical Paper Mfg. Co. in Holyoke, Mass. died at his home in Marysville, Mich., June 21, after a short illness.

He was treasurer and manager of the Port Huron Sulphide and Paper Co. in Marysville where he had resided for the past 28 years. Earlier he was associated with Crocker-McElwain and Chemical Paper.

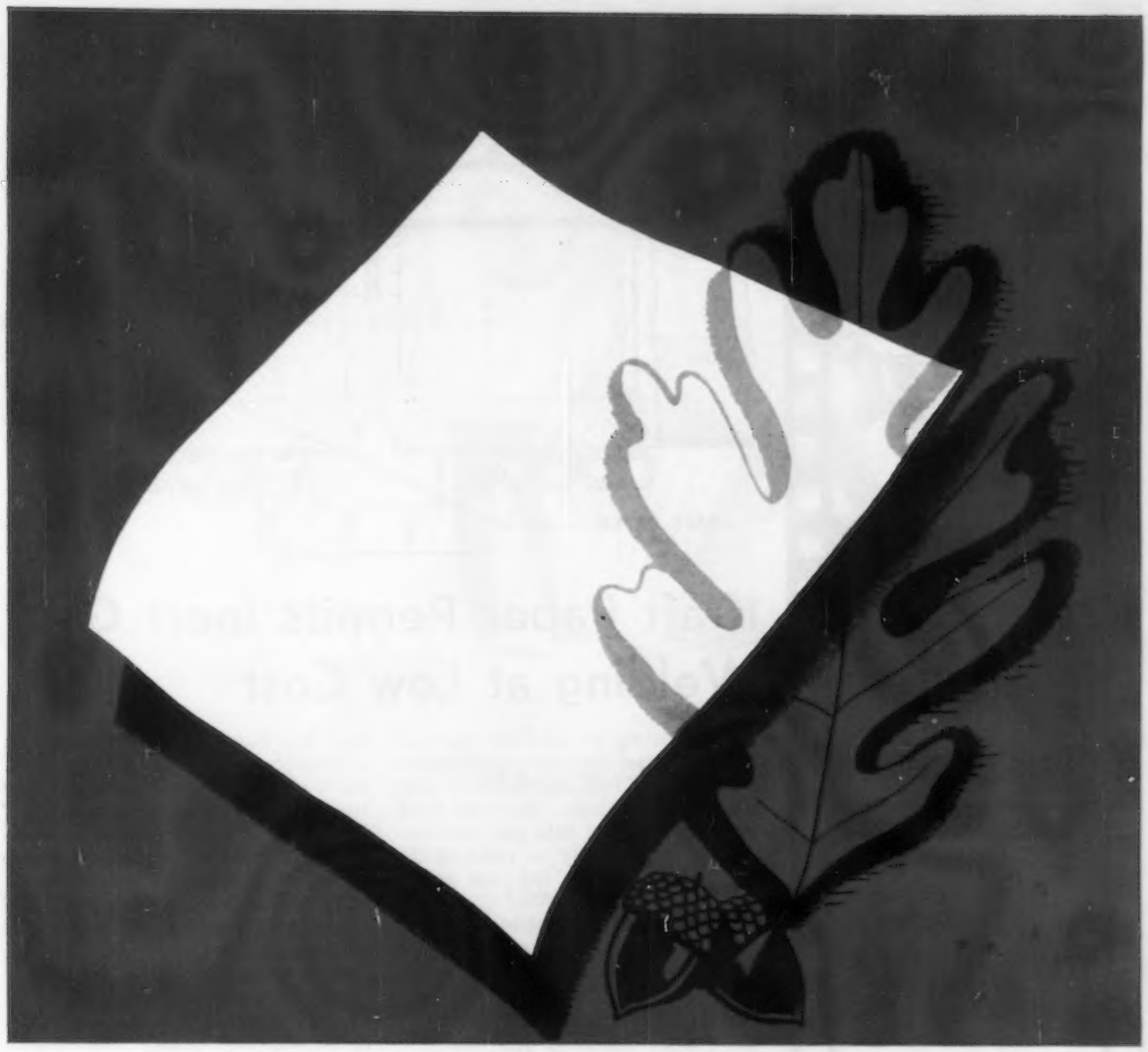
Charles Aull, 88, died June 28 in Middletown, Ohio, following an illness of three years. Mr. Aull was assistant secretary of the Sorg Paper Co. from 1918 until his retirement in 1953. During most of his service with Sorg he also served as a director of the company.

Michael Hesser died suddenly June 26 at his home in Exton, Pa. He founded Exton Paper Manufacturers Inc. at Exton, Pa. in 1951 and up until the time of his death was owner and president. He was employed at Kieckhefer Paper Co., Delair, N. J. for approximately 20 years; also managed Daring and Eagle Paper mills.

Doyle L. Harris, personnel director for the Hankins Container Corp., died June 26 in Fairview Park Hospital, Cleveland, Ohio.

Theodore W. Olson, 56, died June 11 after a lengthy illness. He was president of Nekoosa Foundry & Machine Works from 1952 until his death.

Howard W. Keil, president and founder of Millcraft Paper Co., Cleveland, Ohio, died in his home at Shaker Heights, Ohio, on June 27.



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H_2O_2 bleaches brighter and whiter...

Experience shows that hydrogen peroxide is an effective bleaching agent for chip-groundwood pulps of all regions in this country.

It gives high brightness, low yellow color, excellent reversion resistance and preserves high yield.

Still another very important advantage—the higher you bleach with *hydrogen peroxide*, the greater the reversion resistance of the pulp.

Shell Chemical has experience bleaching chip-groundwood pulp from a wide variety of species. Our laboratory facilities and field engineers are available for bleaching studies and mill trials. Data on single-stage and two-stage bleaching processes can be placed at your disposal.

Your Shell Chemical representative will be happy to supply you with complete information on hydrogen peroxide bleaching of ultra-high-yield pulp.

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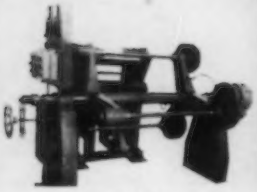
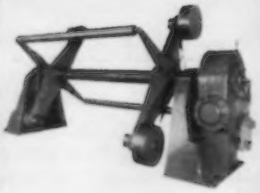


FLYING SPLICE



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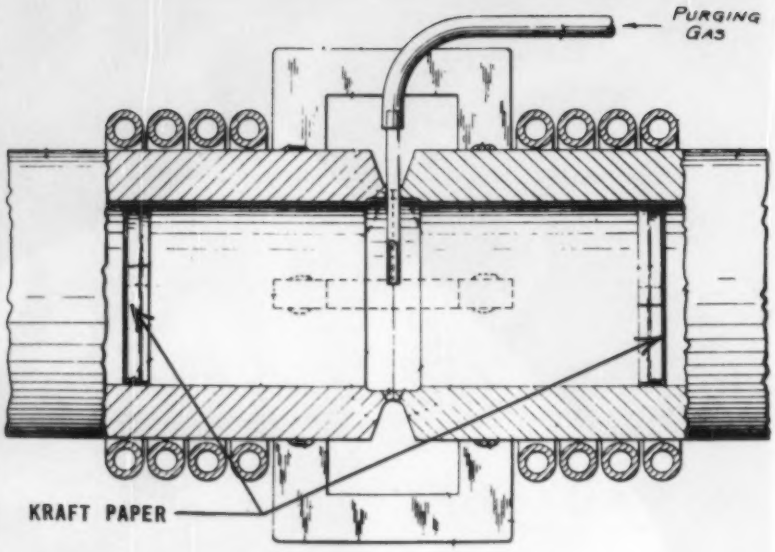

Kraft Paper Permits Inert Gas Welding at Low Cost

An ingenious use of 50-pound kraft wrapping paper has been developed to make possible field application of inert gas welding methods. Inert gas welding of pipe in the field has been limited by the difficulty in retaining the gas in the weld area and then getting rid of the retaining device.

By hitting on the use of a circular piece of kraft paper attached with masking tape as baffles inside the pipe six inches from the ends to be joined, Robert T. Pursell, metallurgical engineer with Stone & Webster Engineering Corp., solved the problem.

The paper is able to withstand the pressure of three or four ounces per square inch exerted by the inert gas and the welding heat of up to 600° F. But at the end of the welding process, during the annealing or stress-relieving phase, both the paper and the masking tape are burned out, leaving the pipe clean.

Low Material and Labor Cost

The newly developed system, according to Mr. Pursell, results in strong and durable welds produced in the field at relatively low material and labor cost. By extending the use of inert gas welding to field application, the new method is reported to save considerable time in repair and maintenance of multiple section pipe.

Developed to meet the welding requirements of Stone & Webster in design and construction, the new welding system was recently granted Patent No. 2,819,517 by the U. S. Patent Office. Mr. Pursell's patent incorporates a complete system for inert gas welding in the field that will make the weld free of imperfections and internal surface oxidation resulting either in weakening the weld or production of fine cracks and crevices.

This procedure involves preheating pipe ends, use of suitable apparatus to hold pipe ends together, welding the roots without filler in the atmosphere of the inert gas, and visual inspection of the internal bead before application of the successive beads. Visual inspection of the internal bead by means of an optical instrument permits checking the degree of penetration obtained throughout the entire periphery of the weld and assures highly improved welds.

Does Not Require Rotation

The newly developed system makes it possible for welds to be made in any plane extending from the horizontal to the vertical. Actual practice has indicated that excellent welds can be obtained without the necessity of rotating or otherwise shifting the position of the pipes being welded during the welding operation.

The procedures and improvements of method outlined in the welding system, while described in relation to pipe applications, according to the patent report can be used in welding other types of structures in which it would otherwise be difficult to provide for the inert gas backing.

PRICES OF MATERIALS

Aluminum sulphate:			
coml. bulk, c.l. wks.	....cwt.	$2.00	/ —
iron-free, c.l. wks.	.....cwt.	3.55	/ —
Casein, acid prec.:			
dom. sh. pt. c.l. (30 mesh)	cwt.	56.00	/
Arg. ex dock	.....cwt.	18.75	/19.25
New Zealand	.....cwt.	23.50	/24.00
Caustic soda:			
c.l. wks. solid, 76%	.....cwt.	4.80	/ —
flak. & grd. drums, c.l.	....cwt.	5.20	/ —
liquid 50% tanks	....	2.90	/ —
liquid 73% tanks	....	3.00	/ —
China Clay			
dom., dry-grd., airfloat:			
325 mesh bgs., c.l. Geo.	ton	10.00	/12.00
300 mesh, bgs., c.l. Geo.	ton	13.50	/14.50
imp., white, lump, c.l. ex. dock		20.00	/35.00
Chlorine:			
single-unit tanks, works	..cwt.	3.15	/ —
multiple unit, 2-5 cars per yr.		5.75	/ 4.05
Lime:			
hydrated, bulk, c.l. N.Y.	..ton	23.55	/ —
quicklime, bulk, c.l. N.Y.	ton	20.55	/ —
Gum rosin:			
K. M, N, drums, c.l. Savan,	cwt.	7.75	/ 7.85
Rosin size:			
70%, gum & pale paste, tank cars, south, sh. pt.	.....cwt.	7.51	/ —
Saltcake:			
dom. bulk, 100% anh. wks.	ton	28.00	/ —
Soda ash:			
light, 58% ash bags, wks.	cwt.	1.85	/ —
bulk, c.l. wks.	.....cwt.	1.55	/ —
Sodium chlorate:			
drums, c.l., wks.	.....cwt.	9.00	/ —
drums, l.c.l., wks.	.....cwt.	9.50	/10.50
Sodium peroxide:			
dms., c.l. E. of Miss.	.....lb.	.20½	/ —
l.c.l. (same basis)	.....	.21	/ .21½
Sodium silicate, 40° Be.:			
tank-cars, wks.	.....cwt.	1.20	/ —
drums, c.l. wks.	.....cwt.	1.55	/ —
47° Be. WW.			
tank-cars, c.l. wks.	..... cwt.	1.90	/ —
drums, c.l. wks.	.....cwt.	2.25	/ —
Soybean, protein:			
chem. isol., wks. c.l. bags	..lb.	.19	/ .23
Starches:			
Corn, multiwalls, c.l. prod. plant:			
pearl	.....cwt.	6.49	/ 6.75
white, dextrins	.....cwt.	8.08	/ 8.20
chlorinated	.....cwt.	8.25	/ 8.35
potato, Idaho, c.l. wks.	cwt.	6.35	/ —
East, fr. all. 50 cents cwt.			
potato, Maine, f.o.b. wks.	cwt.	6.25	/ —
Sulphuric acid:			
60° Be. cbys. c.l. wks.	....cwt.	2.00	/ —
l.c.l. wks.	.....cwt.	2.30	/ —
tank-cars, wks.	.....ton	18.60	/ —
Sulphur:			
crude, c.l. mines, contract,	long ton	23.50	/ —
f.o.b. vessels Gulf dock	.ton	25.00	/ —
Sulphur dioxide:			
liquid, coml. cyl., wks.	...lb.	.10	/ .12
multi-unit cars, wks.	..... lb.	.0535	/ —
Talc, fibrous grd., bags:			
c.l. wks., N.Y.	..... ton	28.00	/ —
l.c.l. wks., N.Y.	.....ton	31.00	/36.00
Titanium dioxide:			
anstase, c.l. dlvd. E. bags	..lb.	.25½	/ —
l.c.l. dlvd.	.....lb.	.26½	/ —
rutile, c.l. dlvd.	.....lb.	.27½	/ —
l.c.l. dlvd.	.....lb.	.28½	/ —

Like one barber more than any other?

IF YOU DO, that's a good sign: you know what you want. You keep going to the same barber because you're confident he'll cut your hair exactly *the way you like it.* He treats you with special care.

People who buy chlorine from Wyandotte know what they want, too. And that's the very reason they buy from us! They know Wyandotte will treat them with special care.

And their confidence is justified — for from basic raw materials to delivery of the finished product, we baby our chlorine every step of the way, keep it under rigid control . . . sell it with a *guarantee of satisfaction.* And we back up this guarantee with the highest caliber technical service.

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For guaranteed satisfaction, buy Wyandotte Chlorine

Shock loads no problem for Super V-Belts on punch press

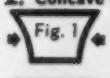
Severe shock loads, which caused standard V-belts to fail, were no problem for Gates Super Vulco Ropes on this punch press.

No other V-belt has ALL these advantages

1. Flex-Weave Cover (U. S. Pat. 2519590)

A Gates exclusive: provides greater flexibility . . . prolongs belt life . . . helps deliver more power to driven machine.

2. Concave Sidewalls (U. S. Pat. 1813698)



Note the concave sides shown in Fig. 1. As belt bends, concave sides become straight, making uniform contact with sheave goove (Fig. 1-A). Even contact means uniform wear . . . far longer belt life.

3. Tough, resilient Tensile Cords

Super strong and resilient; provide 40% greater horsepower capacity . . . easily absorb heavy shock loads . . . reduce number of belts required, save weight and space.

4. High Electrical Conductivity

Built into Gates Super Vulco Ropes for safer drives (in explosive atmosphere).

5. Oil, Heat, Weather Resistant

Made with special rubber compounds, Super Vulco Ropes stand up longer under all conditions.

TPA 315

Gates

World's Largest Maker of V-Belts

Especially designed to handle the heaviest shock loads, Gates Super Vulco Ropes solve tough drive problems—reduce both maintenance and replacement costs.

For example: Mr. Daniel Rusinow, president of the R & D Manufacturing Co., Detroit, Michigan, needed to improve efficiency in a 250-ton punch press. The press was originally driven by flat belts, but these slipped and proved unsatisfactory.

Mr. Rusinow first replaced the flat belt drive with standard V-belts, but the severe shock loads of the punch operation caused the belts to fail.

A superior shock-absorbing drive was needed—the local Gates Field Engineer was consulted, and Super Vulco Ropes recommended for the job.

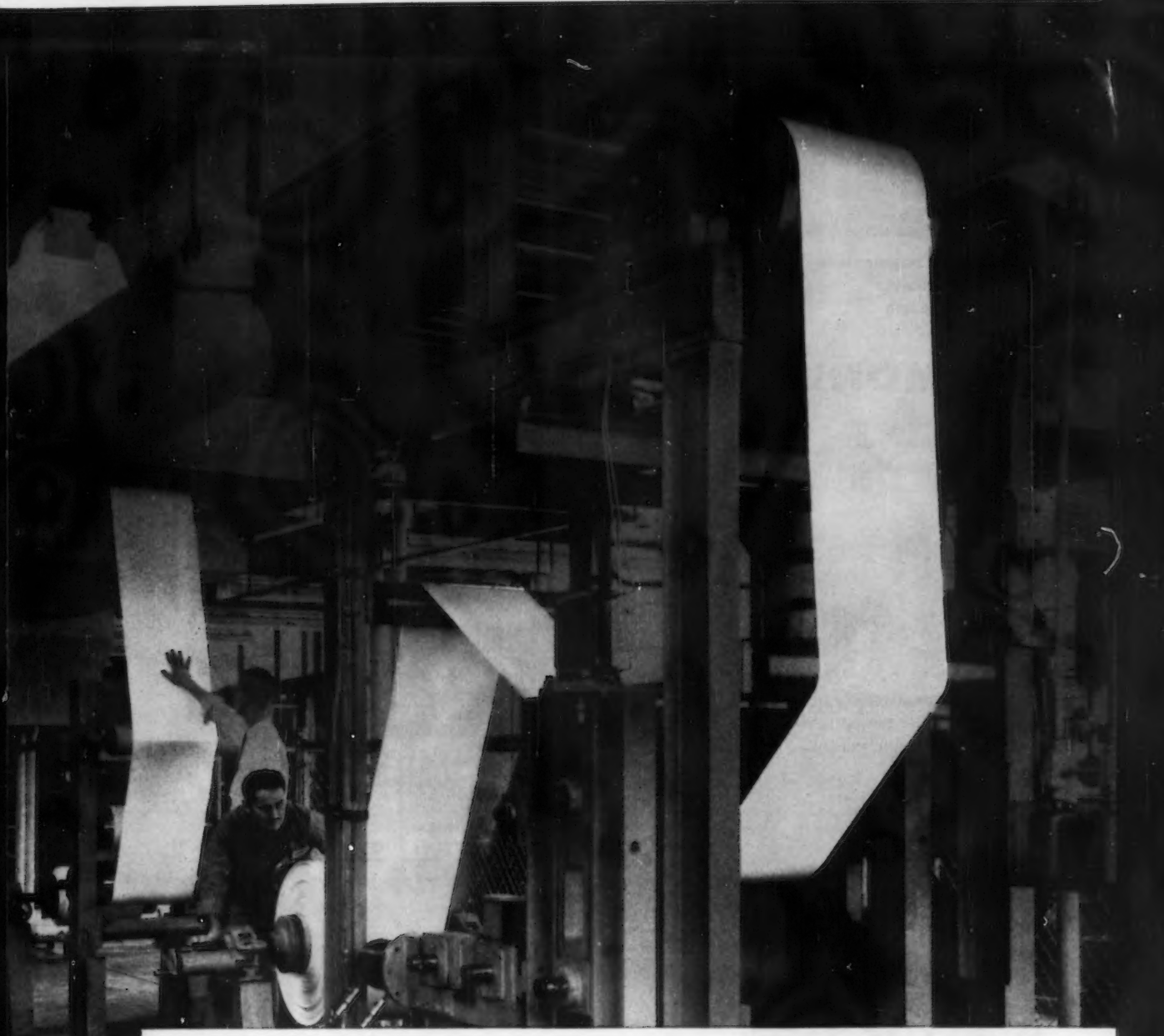
Mr. Rusinow commented, "After our experience with other V-belts, I did not believe it possible to design such an excellent drive, but Gates engineering service and Super V-Belts proved the right answer to the problem."

● **Drive data and design assistance are quickly available to you. Simply call your nearby Gates distributor. Gates V-Belt stocks are carried in all major industrial centers.**

The Gates Rubber Company
Denver, Colorado

Gates Super VULCO ROPE Drives

40% more Horsepower Capacity



Something **NEW** in paper coating

A versatile new machine, designed to duplicate mill conditions and various types of coating operations, has recently been installed by Koppers to aid in the development of new latices for coated papers.

In addition, it will enable paper-coaters to evaluate and select the best possible formulations for coating their products—without loss of production time.

Here is a development in keeping with Koppers continued interest in the paper industry—an interest which has consistently resulted in outstanding customer service, because of newer, more modern equipment, excellent research facilities and highly trained personnel.

For more information, wire or write, Koppers Company, Inc., Koppers Bldg., Dept. PTJ-78, Pittsburgh 19, Pennsylvania. TWX Call Number . . . PG533

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chlorine
soda ash
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Houston . . . . . CApitol 5-6511
New Orleans . . . . . Tulane 7491
New York . . . . . PLaza 3-0700
Pasadena . . . . . Ryan 1-7477
Philadelphia . . . . . RIttenhouse 6-2610
Providence . . . . . GAspee 1-2070
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THIRD QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

	Delivered Basis				
	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	§$90.00/ —	§$90.00/ —	§$90.00/ —
Bleached Gw'd.	$97.50/100.00	$97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	$157.00/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		§137.00/ —		
Kraft, Semi-bleached	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd.	135.00/ —	135.00/ —	†135.00/ —	*130.00/ —	
Sulphite, Unb'l. Gl'sn		134.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

NEW YORK RAG MARKET

PRICES NOMINAL

New Domestic Cotton Cuttings
Delivered Mill Basis

	Per 100 lbs.
No. 1 White Shirts	$13.50/$14.50
No. 1 Unblchd. Muslins	16.00/ 17.00
Blchd. & Unblchd. Underwears	15.00/ 16.00
No. 1 Light Cream Silesias	12.00/ 13.00
No. 1 Light Blue Overalls	7.00/ 8.00
Percales	6.00/ 6.50
No. 1 Light Prints	5.00/ 5.50
Suntan Khakis	5.75/ 6.75
Cottonades	3.00/ 3.50
No. 1 Washables	2.50/ 3.25

Old Domestic Cotton Rags
Delivered Mill Basis

	Per 100 lbs.
Mixed White	$3.25/$3.75
Cotton Pants & Overalls	2.25/ 2.75
Twos and Blues, Repacked	2.00/ 2.50
No. 2 Roofing	.60/ .75

COTTON LINTERS

Memphis Market
f.o.b. Oilmills

Week Ended July 3	Per 100 lbs.
Grade 1	n. a.
2	
3	$9.50/ $8.00
4	7.50/ 7.00
5 1 cut—felting	6.50/ 6.00
6	5.50/ 5.00
7	5.00/ 4.50

*Based on 73% cellulose.

OLD ROPE & BAGGING

(Prices to Dealers, f.o.b. N.Y.)

	Per 100 lbs.
New Burlap Cuts	$4.50/$5.50
Scrap Burlap	3.50/ 4.25
Australian Wool Pouches	5.00/ 5.50
Gunny	4.50/ 5.00
No. 1 Domestic Manila Rope	6.25/ 7.50
No. 1 Foreign Manila Rope	5.25/ 6.25
Domestic Sisal Strings	4.00/ 4.50

WASTE PAPER MARKET

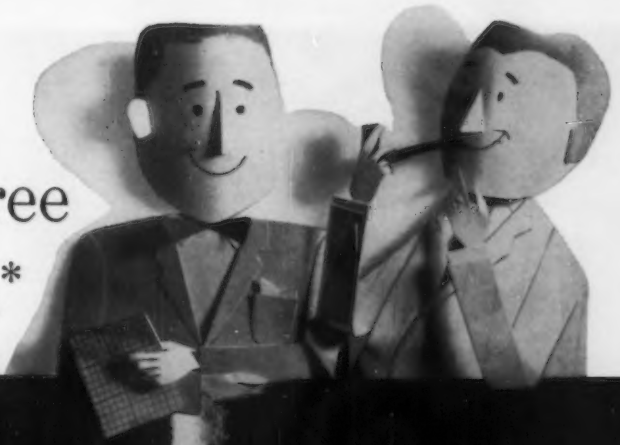
Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	July 7	July 7	July 7	July 7
No. 1 Mixed Paper	$5.00/ $7.00	5.00/ 7.00	4.00/ —	12.00/ —
No. 1 News	11.00/ 12.00	12.00/ —	14.00/ —	14.00/ —
Overissue News (Lg. size)	11.00/ 14.00	11.00/ 13.00	19.00/ —	18.00/ —
Mill Wrappers	10.00/ 13.00	10.00/ 12.00	7.00/ —	13.00/ —
Old Corrugated Containers	21.00/ 22.00	20.50/ 21.00	19.00/ —	22.00/ —
Super Resorted Kraft Paper	30.00/ 35.00	35.00/ 40.00	35.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts	30.00/ 35.00	35.00/ 37.50	37.50/ —	30.00/ —
(Semi-chem. medium)	40.00/ 45.00	37.50/ 45.00	40.00/ 45.00	30.00/ 35.00
New 100% Kraft Corr. Cuts	50.00/ 55.00	50.00/ 55.00	55.00/ —	45.00/ —
New Br. Kraft, Env. Cuts	65.00/ 70.00	70.00/ 75.00	55.00/ —	50.00/ 55.00
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	50.00/ —	55.00/ 60.00
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	65.00/ —	55.00/ 60.00
No. 1 Groundwood Shvs.	21.00/ 25.00	20.00/ 25.00	14.00/ —	30.00/ 35.00
White Newsblanks	42.50/ 50.00	42.50/ 50.00	35.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	60.00/ 65.00	55.00/ —	— / —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hd. White Shvs.	85.00/ 95.00	95.00/105.00	90.00/ —	85.00/ 90.00
Hd. White Env. Cuts	105.00/110.00	110.00/115.00	100.00/ —	100.00/110.00
Col. Tab. Cards	50.00/ 55.00	55.00/ 60.00	47.50/ —	27.50/ —
Manila Tab. Cards	65.00/ 70.00	70.00/ 75.00	65.00/ —	65.00/ —
No. 1 Col. Ledger	28.00/ 30.00	30.00/ 35.00	40.00/ —	22.00/ —
White Ledger	42.50/ 50.00	45.00/ 50.00	52.50/ —	45.00/ —
Mixed Book & Mag.†	15.00/ 18.00	17.00/ 19.00	12.00/ —	— / —
No. 1 Books‡	19.00/ 23.00	20.00/ 22.00	27.50/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

paper men uniformly agree on TRONA*



...as their source of supply for quality

SALT CAKE

GUARANTEED 99% Na_2SO_4

SODIUM CHLORATE

FOR CHLORINE DIOXIDE BLEACH

SODA ASH

OF HIGHEST PURITY

Papermakers know that Trona has what it takes... large, diversified production—uniform, high quality—dependable service. Vast natural resources for highest purity SALT CAKE make American Potash and Chemical Corporation your prime supplier of this essential ingredient for quality kraft production. Basic also in SODIUM CHLORATE. Trona works through and with the Solvay Division of Allied Chemical and Dye Corporation in the marketing of $NaClO_3$ for the high-stage chlorine dioxide pulp bleaching process. Completion of our new multi-million dollar electrochemical plant in Aberdeen, Mississippi, will make Trona the largest producer of sodium chlorate in the western hemisphere. American Potash and Chemical Corporation is keeping pace with the paper industry.

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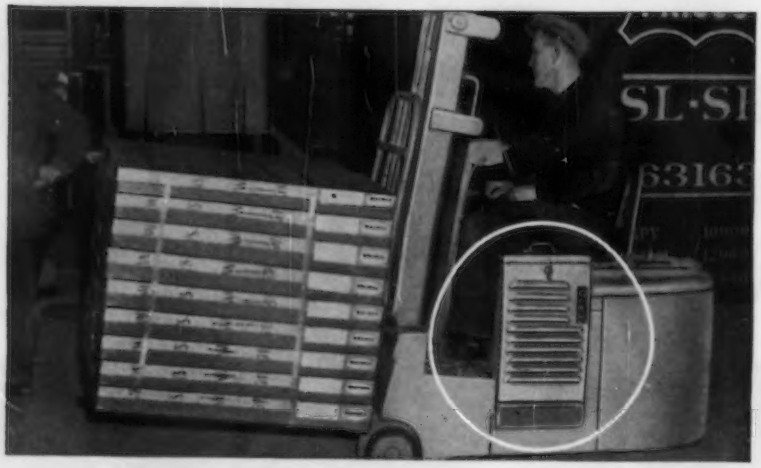
NEW YORK OFFICE: 99 PARK AVENUE, NEW YORK 16, NEW YORK

Plants: TRONA AND LOS ANGELES, CALIFORNIA; HENDERSON, NEVADA; SAN ANTONIO, TEXAS (AMERICAN LITHIUM CHEMICALS, INC.)

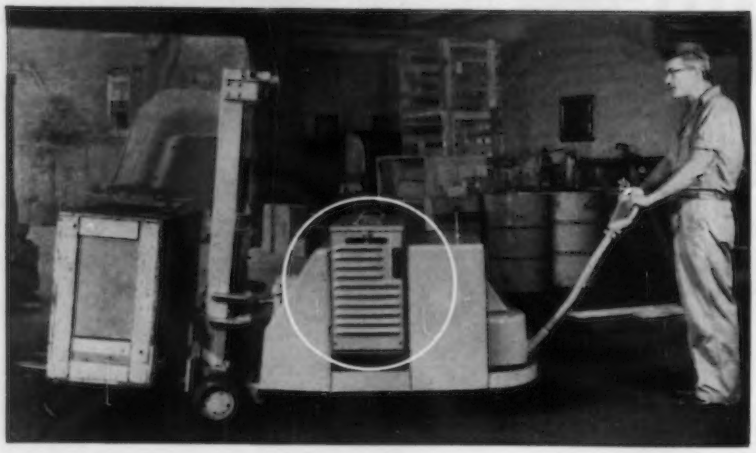
*Tradename and trademark of AP&CC

Producers of: BORAX • POTASH • SODA ASH • SALT CAKE • LITHIUM • BROMINE • CHLORATES • PERCHLORATES • MANGANESE DIOXIDE and other diversified chemicals for Industry and Agriculture



The Most Versatile Power Unit Ever Developed For Small Trucks

READY-POWER BANTAM MODEL W



Only the compact new Bantam Model W provides smooth, dependable gas-electric power that can be quickly interchanged from truck to truck.

A new high-performance unit features 12-volt automotive-type starting and ignition system plus complete choice of idling speed. Full access to engine and generator simplifies adjustment, even on the truck. Fits practically all makes of walkie and rider trucks up to 2000 lbs. *Write today for full information.*

READY-POWER

The READY-POWER Co., 3823 GRAND RIVER AVE., DETROIT 8, MICH.

Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel-Electric Power Units for Industrial Trucks

NEWS OF SUPPLIERS

C. W. Parker Jr.

A. R. Tofte

J. W. Murphy

Allis-Chalmers Industries Divisions has announced the creation of a new position, director of sales promotion. Charles W. Parker Jr., formerly manager of the company's Philadelphia district, was named to the new position.

Included in the new organization are departments for advertising and publications and industrial press.

A. R. Tofte, formerly manager of the advertising and industrial press department, was named manager of the publications and industrial press department.

J. W. Murphy, formerly assistant manager of the advertising and industrial press department, is manager of the new advertising department.

De Laval Steam Turbine Co. announces an exclusive license agreement with W. G. Stoeckicht of Munich, Germany, under which De Laval will manufacture and sell planetary gears in the United States, to be known as De Laval Stoeckicht gears.

Planetary gears have been used in many applications in this country and abroad mainly because of its inherent advantages of compactness, lightweight, inline shaft arrangement and high efficiency.

Mr. Stoeckicht has devoted his work to improvements in planetary gears which have evolved a design combining the inherent advantages of a planetary or epicyclic gear with increased reliability and long life, particularly for applications involving medium and larger powers.

One in a series of interviews with the men who are "Virginia"

"Bleaching groundwood pulp with hydrosulfites can be done easily—with minimum capital investment—for less than $6 per pulp ton, including chemicals and steam for heating"

Robert Barton, a "Virginia" technical representative

Simplicity of operation, low cost, high pulp brightness—these factors have attracted many groundwood pulp processors to the use of either sodium or zinc hydrosulfite as their principal bleach agent.

The advantages of hydrosulfite bleaching are discussed by Robert Barton, a technical representative of Virginia Smelting Company.

Q How does the cost of bleaching with hydrosulfite compare with the cost of oxidizing bleaches?

A Extremely well. The cost of using zinc or sodium hydro usually runs less than one-half that of the oxidizing bleaches, and with equally good results.

Q Just what is the brightness gain using hydro?

A That question has to be qualified somewhat, I think. You see there are factors that have to be considered in bleaching groundwood pulp with hydro —the *p*H of the stock, temperature, reaction time, iron content of the pulp and of the process water. But with reasonably good conditions, single-stage bleaching with hydro will result in about 10 or 12 brightness points gained.

Q Does installation of equipment present any problem?

A Not at all. Most manufacturers who have gone to the hydro bleaching process are well pleased with the simplicity of the installation. And at the low cost, I might add. Generally they can use existing chests and pumps in their plants —adding necessary piping. Not much more is needed.

Q Do the hydrosulfites offer any advantages to a manufacturer now using peroxide for his bleach?

A Very definitely. In our laboratories at "Virginia" we have helped develop the 2-stage bleach for groundwood pulp that gives an absolute maximum brightness—at a cost that cannot be touched by any other method.

Q How does this 2-stage bleaching work?

A Well, for brightness gains up to 12 points, of course, the single-stage hydrosulfite bleach is the most economical. But for gains from 12 to 20 points, we recommend a 2-stage bleach. The first stage is a peroxide bleach. We follow that with a sulfur dioxide treatment to remove any residual peroxide in the slurry. This is followed by a hydro bleach. We will be happy to furnish all the data to anyone interested in this process.

Q Does "Virginia" offer technical assistance to any manufacturer interested in either the single-stage or 2-stage bleach process?

A A great deal. Our experience in this field is long and extensive, and available to anyone interested. For preliminary bleaching studies, we maintain a complete pulp laboratory at our plant. To solve certain types of problems, we sometimes obtain pulp samples, make laboratory bleaches, study the brightness gains along with any contributory factors, and make a complete report to the manufacturer. Along with the report go our recommendations—and of course our laboratory men are quite impartial in their findings. If the manufacturer has a process involving problems that make hydro impractical for any reason, we will tell him so quite frankly. But this occurs very infrequently. We welcome inquiries from any manufacturer interested in exploring the possibilities of hydrosulfites in pulp bleaching.

• • •

FOR MORE DATA ON HYDROSULFITES

write to us on your company letterhead describing your present bleaching process, giving full details wherever necessary. We will send you pertinent technical bulletins from the extensive "Virginia" library of literature on pulp bleaching. If you prefer, we will have a "Virginia" man call on you.

Industrial Division
VIRGINIA SMELTING COMPANY
Dept. 215, West Norfolk, Va.

VIRGINIA® Chemicals

Field Offices: New York • Boston • Detroit • Chicago • Atlanta • Asheville • Philadelphia • Akron • Seattle

Available in Canada and many other countries

Philadelphia Gear Corp. has elected S. L. Crawshaw a vice president. Mr. Crawshaw, who joined the gear manufacturer in 1955, will direct the company's new high precision gear grinding activities.

Crane Co. has appointed David H. McLain general manager of branches. He has been administrative assistant for branches since January, 1957.

Mr. McLain joined Crance Co. in 1929 at its Philadelphia branch. In 1942 he was named office manager at the Crane branch in Boston and three years later joined the control division in Chicago. He was assigned to that division until his transfer to the branch division in 1957.

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Process Studies, Design, Specifications and Construction Supervision

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Steam, Hydraulic and Electrical Engineering Reports, Consultation and Valuations

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Geigy's Basle Headquarters

This year the international chemical firm of Geigy celebrates its 200th year in the dyestuff industry. For two full centuries Geigy has been either a purveyor of raw materials used for making dyes, or the actual manufacturer of dyestuffs for the textile, paper and leather trades. Thus Geigy joins the very exclusive ranks of enterprises that have existed under the same name for two hundred years.

Next year, Geigy reaches another important milestone—its 100th year as a manufacturer of synthetic dyestuffs. For it was just three years after the English scientist, William Henry Perkins, synthesized the dye Mauveine, thereby launching a new era for the dyestuff industry, that Geigy scientists in Basle, Switzerland, the company's world headquarters, successfully produced their own syntheic dyes.

National Carbon Co., Division of Union Carbide Corp., has announced an expansion of the chemical products marketing group. Two field sales divisions have been established with headquarters in New York and Chicago.

E. S. Malkin, formerly chemical products field salesman in New York, has been named eastern division manager. J. F. Brauning, formerly chemical products field salesman in Chicago, has been appointed western division manager.

J. M. Brown, former chemical products salesman in Birmingham, assumes Mr. Brauning's responsibilities in the Chicago area. T. W. Manchester becomes chemical products salesman in Birmingham.

D. S. Glass, previously a member of the chemical products headquarters marketing staff in Cleveland, has been named to the field sales position in New York formerly held by Mr. Malkin.

Heyden Newport Chemical Corp. has appointed Elmer Smith sales manager of the American Plastics Corp., a subsidiary. Mr. Smith has 15 years experience with Heyden Newport in various sales, development and production capacities. Most recently, he has engaged in market development for the company's newer organic chemicals. He has also served as American Plastics' assistant production manager, supervising reinforced plastics molding operations.

W. A. Baltzell
Oakite Products

W. Morrison
Allis-Chalmers

Oakite Products Inc. has named William A. Baltzell, formerly assistant sales manager, its industrial sales manager. He will be responsible for the work of the company's 17 divisions and 240 technical service representatives.

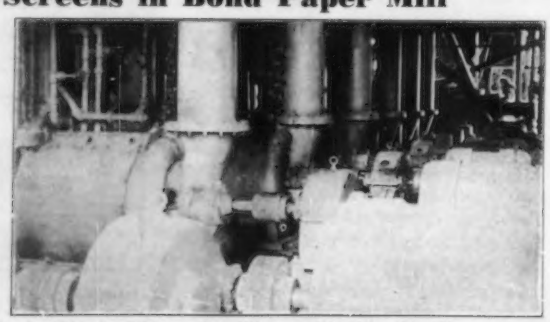
Mr. Baltzell joined Oakite's field service staff in 1941. He was appointed southern division manager in 1946, and became assistant sales manager in 1953.

Allis-Chalmers Industries Divisions have assigned William Morrison as a sales representative to the Charlotte, N. C., district office. An industrial management graduate of Georgia Tech, Morrison recently completed Allis-Chalmers general purpose equipment training course.

Three APMEWS Replaced a Big Room Full of Flat Screens in Bond Paper Mill

"Apmew centrifugal pulp cleaners & screens have now been installed and are working very satisfactorily." Centrifugally cleaner, more salable paper is being produced for big profits.

Occupy 10 feet by 30 feet—SAVE 81 feet by 96 feet



APMEW, Inc., P. O. Box 1, Glens Falls, N. Y.

Westvaco Quality Papers

Westvaco manufactures a wide range of high quality paper products—from fine printing to rugged converting papers. All of these papers are made from virgin chemical pulps to precise standards of uniformity and quality—Westvaco's guarantee of top performance.

Printing Papers . . . Coated and uncoated letterpress, coated and uncoated offset, and gravure.

Business Papers . . . Bond, mimeo, duplicator, ledger.

Bristols . . . Index, post card.

Converting Papers . . . Label, tablet, envelope, lining, tabulating card, coating raw stock.

Bleached Boards . . . Cup, coated and uncoated carton boards, converting and barrier boards, file folder and tag stock.

Kraft Papers . . . Bag, multi-wall sack, envelope, asphalting, gumming, interleaving, waxing.

Containerboard . . . Linerboard and corrugating medium.

Market Pulp . . . Bleached and unbleached sulphate.

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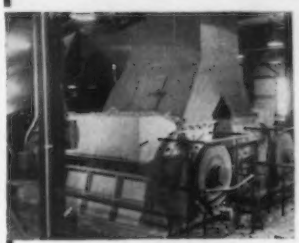
BARK OR WOOD . . .

as well as Knot Shredders, Re-Chippers, De-Pithers and Broke Pulpers, used by many of the leading firms in the industry, are some of the proved and efficient

EQUIPMENT FOR THE PULP & PAPER INDUSTRY MADE BY GRUENDLER



Two GRUENDLER Bark Hogs at St. Regis Paper Co., Jacksonville, Fla., handling 60,000 lbs. per hour having a 50% moisture content.

You need Catalog #900 to see the complete line. Write for it! We'll be happy to send it.

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CRUSHER AND PULVERIZER COMPANY
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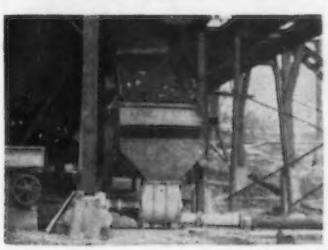
COSTS LESS **TO INSTALL, TO OPERATE, TO MAINTAIN . . .** if you're handling chips or other wood by-products you can't beat the CHIPVEYOR for low cost efficiency. No other system can match its flexibility, and its ability to deliver the chips at the lowest possible cost.



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Conveyair's patented feeder with power saving **positive discharge** is the key to Chipveyor success in the low cost pneumatic conveying field. Available in a range of sizes to suit every installation, the star feeder cuts power requirements as much as 30%, provides smooth trouble-free conveying for most granular materials.

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Conveyair

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Conveyair Inc: 921 S.W. Washington Ave., Portland 5, Ore. CApitol 2-1291

. . . on USS Multigrip Floor Plate

USS Multigrip Floor Plate means safe footing, wherever it's used. Smooth, evenly spaced risers give traction in any direction—even when the plates are wet. Because the risers are flat-topped, footing is comfortable, as well as safe.

Rolled from tough steel, Multigrip won't chip, crack, or splinter. And it will give years of service and protection. It's available in large plates, eliminating installation waste.

These are just a few of the reasons why it pays to specify Multigrip Steel Floor Plate for stairs, aisles, ramps, platforms, floor areas, or any other place where safe footing is imperative. United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

USS and Multigrip are registered trademarks.

Sold by leading distributors from coast to coast

USS United States Steel

Single and Duplex Layboys for finishing room, board and pulp machine application. Supplied with tandem delivery for speeds to 300 feet per minute, overlapping delivery for speeds above 300 feet per minute. Handles tissue, blotting, envelope, and various weights of paper and board.

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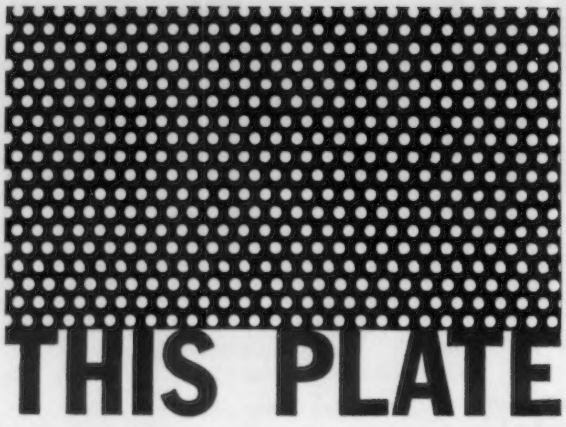
HAMBLET MACHINE CO.
LAWRENCE, MASSACHUSETTS



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CUTS DOWNTIME DUE TO BLINDING!

Clean holes and precision spacing make Hendrick Perforated Plate tops for all filtering and dewatering applications. These properties in Hendrick Perforated Plate always assure excellent draining, cut production costs due to blinding. Hendrick Plate is made of commercially rolled metals and gauges. There is one to meet your specific needs. For more details, write Henrick today.

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Perforated metal • Perforated Metal Screens • Wedge-Slot Screens • Wedge Wire • Architectural Grilles • Miteo Open Steel Flooring—Shur-Site Treads • Armorgrids • Hydro Dehazers • Distillation Column Internals

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POTDEVIN Self-Opening-Square BAG MAKING MACHINE

All the modern engineering advances of Potdevin's smaller bag size machines are built into these machines to make the LARGE sizes so popular today. Machines have many new developments including pneumatic mill roll lift, pneumatic feed rollers, three-position finger adjustment, etc. Write for details.

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First Choice
in REPLACEMENT TACKLE for all makes, sizes & types of Stock Treating Equipment

- Custom Heat Treated Steel
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- Hard Rolled Phosphor Bronze

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Contact: **John W. BOLTON & Sons, Inc.**
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Highest Screening Capacity

With their improved SLOT DESIGN **Fitchburg NEW TYPE-DUPLEX SLOT** Screen Plates have proven the HIGHEST CAPACITY plates made.

They are nearest to "self-cleaning" due to the special design milled slots. Require LESS "wash-ups." Maintain highest capacity all day—every day.

Give you up to ⅓ more screened stock: Pulp, Paper or Board.

FITCHBURG
Screen Plate Co., Inc.
301 South St., Fitchburg, Mass.

Cast Bronze
Plain or
Chrome Plated

Modern Cleaning Systems for Modern Paper Making

Cleaning Fourdrinier wires using Oakite flow-on system and Oakite Composition No. 45

Speed cleaning from wet-end to dry
with one double-action Oakite material

Double-action Oakite Composition No. 45 has proved to be one of the most versatile materials available to the paper industry. It combines solvent and alkaline cleaning power to penetrate and strip away the soils most commonly encountered in paper mills that use soda, sulphite and sulphate produced stock.

Non-foaming, easy to prepare, free-rinsing and with no offensive odor, Composition No. 45 is a favorite for cleaning:

- **Pulp Washers**
- **Pulp Screens**
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- **Stock Preparation Units**
- **Dye Equipment**
- **Save-Alls**
- **Fourdrinier Wires**
- **Couch Rolls**
- **Press Rolls**
- **Cylinders**

Try Oakite Composition No. 45 on your tough jobs, wet-end or dry. Your local Oakite man will be glad to recommend cleaning systems and methods using this hard-working, soil-stripping material. Or write for Bulletin B-5057. Oakite Products, Inc., 48A Rector Street, New York 6, N. Y.

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PLANT SUPERINTENDENT FOR INSULATION BOARD PLANT IN NORTH CENTRAL STATES. MUST BE THOROUGHLY EXPERIENCED IN ALL PHASES OF MILL OPERATIONS. GIVE FULL DETAILS IN FIRST LETTER.
ADDRESS BOX 58-169 CARE PAPER TRADE JOURNAL.
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Wanted by manufacturer of paper and film bag machinery and printing presses.

Located in pleasant New Jersey community.

Degree not necessary—only the ability and practical background for independent design of converting machinery.

Excellent opportunity for capable man. Salary open.

Please send resume of experience. Box 58-13 care Paper Trade Journal.
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To take full charge of production of light-weight specialties in New England Mill with two cylinder machines. Age 35 to 45.
Extensive paper making background required. Address Box 58-164 care Paper Trade Journal.
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M.S. or Ph.D. in Chemistry or Chemical Engineering with 3-6 years experience in paper coatings, resins and resin emulsions. Knowledge of paper coating equipment and polymer chemistry is essential. Ability to plan and organize project, write clear, readable reports is also important. Successful candidate is expected to advance rapidly to Project Leader.

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Send details of education, experience, and personal data to:

Personnel Director
WEST VIRGINIA PULP AND PAPER COMPANY
Mechanicville, New York
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Large completely integrated Kraft Paper Mill in Northeast Florida seeking Graduate Project Chemical Engineer with 3 to 5 years experience for paper mill operating problems. Please submit detailed resume of experience, education, salary requirements, and personal data. Replies will be held in strictest confidence. Reply to Box 58-173 care Paper Trade Journal.
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NEWSPRINT SALESMAN
YOUNG MAN age 30-40, college graduate preferred but not essential. Must have newsprint sales experience. Excellent future for right man. Salary comparable to position. Replies held in strictest confidence. Reply to Box 58-172, Paper Trade Journal.
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POSITION WANTED
Felt Mill Supt. or Tour Boss in any kind of mill—age 49—26 yrs. of practical paper making on all grades of paper. Fourdrinier & cylinder. Available now. Write Box 53, Stockland, Ill. or phone 2-3435 Stockland, Ill.
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KRAFT MILL ENGINEER
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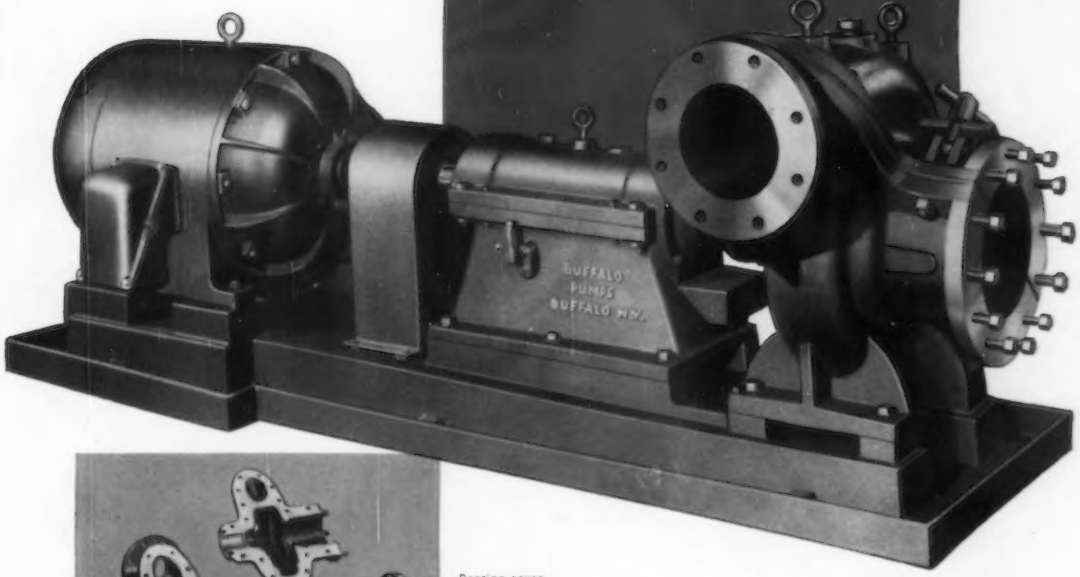

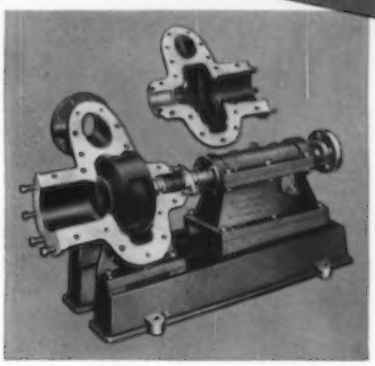

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